

REGULATED QUALIFICATION FRAMEWORK (RQF)

Qualification Specification

LCL Awards Level 3 Award in the In-Service Inspection and Testing of Electrical Equipment

1. Objective:

This qualification is aimed at those who are responsible for maintaining electrical equipment and that undertake practical inspection and testing of electrical equipment. It has been designed for operatives with appropriate electrical skills and allow them to continue to learn, develop and practise the skills required to carry out the in-service inspection and testing of electrical equipment. This qualification follows the latest edition of the IET Code of Practice for In-Service Inspection and Testing of Electrical Equipment.

2. Qualification Framework:

The qualification comprises of 1 mandatory Unit

Unit Title	Unit Reference Number	Type of Unit	Level	Credit Rating
In-Service Inspection and Testing of Electrical Equipment	LCL-E3005	Knowledge and Practical	3	4

Qualification Structure:

- LCL Awards Level 3 Award in the In-Service Inspection and Testing of Electrical Equipment
- QAN (601/0491/0)
- The Guided Learning Hours (GLH) are **35 hours**
- The Total Qualification Time (TQT) is **40 hours**
- The total credit required to achieve the qualification is **4**

3. Unit Grading Structure:

This is a Pass or Fail qualification. The learner is required to successfully achieve a pass in both elements of the mandatory unit for this qualification to be awarded.

4. Unit Specification:

LCL-E3005 In-Service Inspection and Testing of Electrical Equipment

Assessment Method - Examination will be by use of Multiple Choice (MC) and Practical Assessment (PA)

Learning Outcome 01: The learner will know the applications, objectives and definitions within the Code of Practice for the In-Service Inspection and Testing of Electrical Equipment

The learner will demonstrate knowledge of:

- 1.1 The premises that are applicable to the Code of Practice for the In-Service Inspection and Testing of Electrical Equipment
- 1.2 The objective of the Code of Practice for the In-Service Inspection and Testing of Electrical Equipment
- 1.3 The definitions used within the Code of Practice for the In-Service Inspection and Testing of Electrical Equipment

Learning Outcome 02: The learner will know the statutory and non-statutory requirements relevant to the maintenance of electrical equipment

The learner will demonstrate knowledge of:

- 2.1 The requirements of statutory and non-statutory acts and regulations relating to the maintenance of electrical equipment
- 2.2 The guidance given by the Health and Safety Executive relating to the use of inspection and testing of electrical equipment
- 2.3 The legal requirement to maintain electrical equipment in a safe condition
- 2.4 The reasons for inspecting and testing electrical equipment

Learning Outcome 03: The learner will know the electrical units, circuits and components associated with in-service inspection and testing of electrical equipment

The learner will demonstrate knowledge of:

- 3.1 The characteristics of the following electrical units;
 - Ohms
 - Volts
 - Amperes
 - Watts
 - Hertz
- 3.2 The common multiples and sub-multiples of the following electrical units;
 - Ohms
 - Volts
 - Amperes
 - Watts
- 3.3 The relationship between power, voltage, current and resistance in electrical circuits

Learning Outcome 04: The learner will know the equipment construction and classifications and how these relate to protection against electric shock

The learner will demonstrate knowledge of:

- 4.1 The key features of the construction and classification of the following electrical equipment;
 - Class I
 - Class II
 - Class II FE
 - Class III
 - Electrical separation
 - Class 0
- 4.2 Construction and identification symbols or marks found on electrical equipment
- 4.3 How the construction of electrical equipment protects against electric shock
- 4.4 The effects of conductor resistance in relation to protection measures
- 4.5 How local protective measures effect the protection of connected electrical equipment
- 4.6 Situations that require the use of a residual current device (RCD)

Learning Outcome 05: The learner will know the procedures for the in-service inspection and testing of electrical equipment

The learner will demonstrate knowledge of:

- 5.1 The different types of in-service inspection and testing
- 5.2 The factors which determine the frequency of inspection and testing
- 5.3 How to carry out risk assessments based on identified factors
- 5.4 The electrical equipment and components to be checked when carrying out a formal visual inspection
- 5.5 How to identify counterfeit equipment

Learning Outcome 06: The learner will know how to carry out inspection and testing of electrical equipment

The learner will demonstrate knowledge of:

- 6.1 The tests that are appropriate for the different types and classifications of in-service equipment
- 6.2 The range of test instruments that can be used for testing electrical equipment
- 6.3 The need for test instruments to be calibrated and in good working order
- 6.4 How to safely isolate a supply before working on electrical equipment
- 6.5 How to carry out the following tests and checks on electrical equipment;
 - Protective conductor continuity
 - Insulation resistance
 - Protective conductor and touch current measurements
 - Polarity check
 - Functional checks
 - Residual Current Device (RCD) testing
- 6.6 The requirements for checking and testing equipment lead set and extension leads
- 6.7 Calculate the resistance of the flexible cable conductors and protective conductors
- 6.8 The safety issues to be considered when testing electrical equipment
- 6.9 The particular requirements for equipment that has high protective conductor currents

6.10 Specify the actions to be taken with damaged or faulty equipment

Learning Outcome 07: The learner will know the information and documentation relating to in service inspection and testing of electrical equipment

The learner will demonstrate knowledge of:

7.1 The purpose of in-service inspection and testing documentation

7.2 Why records and documentation should be kept throughout the lifetime of tested electrical equipment

Learning Outcome 08: The learner will be able to inspect and test items of electrical equipment

The learner will be able to:

8.1 Inspect and test items of electrical equipment including;

- Class I
- Class II
- Class II FE
- Class II with unearthed metal

8.2 Complete documentation associated with the inspection and testing of electrical equipment including;

- Equipment register
- Equipment formal visual and combined inspection and test record
- Labels

5 National Occupational Standard:

The Units used in this qualification have a direct relationship with the National Occupational Standards for the areas of work contained within.

6 RQF Descriptor Level {3}.

Knowledge descriptor: *(the holder 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 holder 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 qualifications, knowledge, skill or understanding which the learner is required to have before taking this qualification. (Pre-requisites)

None prescribed.

8 Units which a learner must have completed before the qualification will be awarded and any optional routes.

Learners must complete the 1 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.

See Section 8.0 above.

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

The In-Service Inspection and Testing of Electrical Equipment Code of Practice (5th edition)

11 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.

12 Planned exemptions

Learners holding one or more of the regulated qualification listed below will be exempted from completing the appropriate unit from this qualification.

Not Applicable

13 Specimen assessment materials.

Not Applicable

14 Specified levels of attainment

Learners must pass the mandatory unit for the qualification to be awarded.

15 Other information

None

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.*

SR – *Short Response question*

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.*

SSAs: 5.2 - Building and construction

Review Date 31st Jan 2024