Part of the Enginuity Group

Qualification Specification

EAL Level 3 Electrotechnical Qualification

Qualification Number: 601/7345/2

Issue 8

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1.0 About EAL

For over fifty years, EAL has been the specialist awarding organisation for engineering, manufacturing, building services and related sectors. Developed to the highest technical standards, our qualifications reflect ever-changing industry and regulatory needs. We support the providers of our qualifications with an unparalleled level of service to ensure that learners are well prepared to take the next step in their journeys, whether study, an apprenticeship or work.

Through industry partnerships with EAL centres and training providers, decades of experience supporting our core sectors, and our role as part of the Enginuity Group, we have built unrivalled knowledge and understanding of employer skills needs. As a result, EAL's skills solutions, including apprenticeship End-Point Assessment, External Quality Assurance and qualifications are respected and chosen by employers to deliver real lifelong career benefits for all our learners. That's why in the last ten years, 1.2 million people across the UK have taken EAL qualifications.

1.1 Equal Opportunities and Diversity

EAL expects its centres to enable learners to have equal access to training and assessment for qualifications in line with equalities legislation. Further details can be located in the EAL Equal Opportunities and Diversity Policy.

1.2 Customer Experience and Feedback

Customer Experience is a fundamental part of EAL's commitment to you. EAL aims to ensure that all customers receive a high-quality efficient service. We are always interested in feedback and if you have any comments or feedback on our qualifications, products or services, please contact the Customer Experience team:

EAL Customer Experience
Tel: +44 (0)1923 652 400
Email: Customer.Experience@eal.org.uk

2.0 Introduction to the Qualification

What is this qualification?

This qualification forms part of an industry-recognised apprenticeship for electrical apprentices. It covers the skills and knowledge needed by an electrician (installation or maintenance). To demonstrate occupational competence, the learner must also complete the AM2S.

It is only for apprentices.

IMPORTANT NOTE: This qualification and the **AM2** is **NOT** a recognised route for an ECS card.

Who is this qualification for?

- Apprentices who are working towards becoming a competent electrician (by completion of this qualification and the AM2S)
- Those wishing to pursue a career in the electrotechnical/building services sector, and who are undertaking an electrotechnical apprenticeship.

What does this qualification cover?

This qualification comprises of knowledge and performance units, which between them cover health, safety, and environmental considerations, organising and overseeing, terminating, and connecting, inspection, testing and commissioning; fault diagnosis and rectification, electrical scientific principles, BS 7671; electrical design; and electrical maintenance.

It requires occupational evidence from the workplace. Both installation and maintenance electricians will undertake the same knowledge units; thus, streamlining delivery at centres.

Unit 08 (Electrical Scientific Principles and Technologies) has two graded assessments; however, the highest grade possible for the qualification is a Pass. Please refer to Section 6 for more information.

Only for new apprentices registered from 04.09.23: In England, there is a requirement to evidence work from non-dwelling locations for specified performance units. Please refer to Section 6 for full details.

2.1 Support for this Qualification

This qualification:

- Is regulated at Level 3
- Is supported by the IET
- Forms part of an industry-recognised apprenticeship standard.

2.2 Achievement of the Qualification

The qualification is awarded when all units for the qualification have been achieved. The centre will then be able to apply for the learner's certificate. The learner will also receive a Certificate of Unit Credit, listing all the achieved units.

The overall grading for this qualification is Pass (or Fail) only.

2.3 Qualification Support Materials

The following materials are available for this qualification:

- Delivery Packs
- Learner Packs
- Assessor Packs
- Knowledge Assessment Documents
- Amendment Document
- RPL/RPA Guidance.

All materials can be accessed by EAL-registered centres via EAL Connect.

2.4 Progression Opportunities

The qualification relates to various electrotechnical qualifications including:

- EAL Level 3 Award in the Initial Verification and Certification of Electrical Installations
- EAL Level 3 Award in the Periodic Inspection, Testing and Certification of Electrical Installations
- EAL Level 3 Award in Electrical Installation Inspection, Testing, Certification, and Reporting
- EAL Level 3 Award in the In-service Inspections and Testing of Electrical Equipment (PAT)
- EAL Level 3 Award in the Design, Installation and Commissioning of Electrical Energy Storage Systems
- EAL Level 3 Award in the Installation of Small-scale Solar Photovoltaic Systems
- EAL Level 3 Award in the Requirements for the Installation of Electric Vehicle Charging Points
- EAL Level 4 Award in the Design and Verification of Electrical Installations.

Learners may also be able to progress to other appropriate further or higher-level study.

Further information can be obtained from the EAL Website, or alternatively, contact:

EAL Customer Experience
Tel: +44 (0)1923 652 400
Email: Customer.Experience@eal.org.uk

2.5 Sustainability and Other EAL Qualifications

EAL has a range of qualifications that may be of interest, including other products relating to sustainability.

Please see the EAL website for further details.

3.0 Qualification Structure

3.1 Rule of Combination

This qualification will be obtained by the learner once they have completed the mandatory units and one of the optional pathway performance units. This diploma has 745 guided learning hours (GLH) and a Total Qualification Time (TQT) of 866 hours. This is the notional time required by the learner to complete the qualification.

The learner must complete the relevant knowledge units prior to the performance units.

To demonstrate occupational competence, the learner must also achieve the AM2S.

IMPORTANT NOTE: Units: NETK3-06A, NETP3-05A and NETP3-04A have been added to the qualification for registrations **from 04.09.23** (**C Suffix on registration code**).

Learners registered prior to this date will be working toward earlier unit equivalents (NETK3-06, NETP3-04 and NETP3-05) and must complete the version of the qualification and related units they have been registered on.

IMPORTANT NOTE: Unit NETK3-18ED3 has been added to the qualification for all new registrations **from 12.08.2024** (**D Suffix on registration code**). This replaces the previous C suffix registration code and incorporates the unit changes to NETK3-04A, NETK3-05A and NETK3-06A.

See Appendix 3: Learner Registration and Certification for details on BS 7617 Amendment 3 pathway transfer options for learners already registered on previous qualification versions.

Mandatory Knowledge Units:

EAL Code	Unit Title	GLH	Ofqual Code
NETK3-01	Understand Health, Safety and Environmental Considerations	65	H/507/7334
NETK3-03	Understand How to Plan and Oversee Electrical Work Activities	40	K/507/7335
NETK3-04	Understand Design and Installation Practices and Procedures	170	M/507/7336
NETK3-05	Understand Terminations and Connections of Conductors	93	T/507/7337
NETK3-06A	Inspection, Testing and Commissioning	80	A/650/7479
NETK3-07	Understand Fault Diagnosis and Rectification	32	F/507/7339
NETK3-08	Electrical Scientific Principles and Technologies	115	T/507/7340
NETK3-18ED3	Understand the Requirements for Electrical Installations BS 7671:2018 (2024)	70	R/651/2451

Continued

Mandatory Performance Units:

EAL Code	Unit Title	GLH	Ofqual Code
NETP3-01	Apply Health, Safety and Environmental Considerations	10	F/507/7342
NETP3-03	Organise and Oversee the Electrical Work Environment	12	J/507/7343
NETP3-05A	Termination and Connection of Conductors	12	Y/650/7478
NETP3-06	Inspect, Test and Commission Electrical Systems	16	R/507/7345
NETP3-07	Apply Fault Diagnosis and Rectification	10	Y/507/7346

Learners are to select ONE optional performance unit from the following:

EAL Code	Unit Title	GLH	Ofqual Code
NETP3-04A	Apply Design and Installation Practices and Procedures	20	T/650/7477
NETP3-09	Apply Practices and Procedures for Maintenance	20	H/507/7348

4.0 Centre and Qualification Approval

Centres wishing to deliver the qualification will need to comply with this Qualification Specification and EAL's centre recognition criteria. Centres must also put in place the appropriate physical and human resources and administration systems to effectively run the qualification.

Please refer to Section 5 for the requirements of centre staff involved in the delivery of the qualification.

For existing EAL centres to put the qualification on your centre remit:
To add the qualification to your centre qualification remit, create and complete a qualification approval application form in Smarter Touch and submit to EAL.

For non EAL centres to gain centre approval to run the qualification:
Please contact the EAL Customer Experience Team:

EAL Customer Experience
Tel: +44 (0)1923 652 400
Email: Customer.Experience@eal.org.uk

5.0 Profiles and Requirements

5.1 Staff Responsible for Registering and Certification of Learners

Centres are required to appoint a suitable member of staff who can take responsibility for registering learners onto qualifications, submitting entries for assessments to EAL, and taking receipt of external assessment procedures (if appropriate). They may also be responsible for applying to EAL for learner certificates. The role may be undertaken by the same person who undertakes quality assurance.

5.2 Teaching Staff

Teachers/instructors involved with the delivery of the knowledge units must demonstrate an understanding of the topics/technical content in this qualification. As a minimum they must have achieved a relevant technical qualification to at least level 3 which covers the key topics in this qualification.

Examples of evidence for this are: City & Guilds Level 2 plus Level 3 Certificates in Electrical Installation Part One and Part Two, or EAL L3 Diploma in Electrotechnical Services. Other electrical engineering qualifications such as OND, or HNC/D etc. An example of not meeting this requirement is by only holding a L2 VRQ or a L3 Award – as clearly this person has not demonstrated technical/academic ability to the level of the qualification being delivered.

Teachers/instructors of practical work should, in addition to the above, be technically skilled for their instruction. This can be evidenced, for example, through a CV, JIB grading at an appropriate grade, membership of an institution, e.g. EngTech, TMIET, MIET.

Teaching staff will also:

- Be working towards an appropriate teaching/training qualification
  or
- Hold an appropriate teaching/training qualification
  - Suitable qualifications include Cert Ed, PCET or Learning and Development trainer units. This must be to a minimum of Level 3 standard.

Teacher CPD

Teachers/Instructors must be able to demonstrate that they are up to date with the electrical industry. This can be evidenced, for example, by accessing trade publications, undertaking updates to wiring regulations or other courses of learning, attending networking events relevant to this qualification, and/or attending industry events.

It is imperative that records are kept of all such CPD opportunities/occasions. Evidence of CPD will be sought by the External Quality Assurer for all approved teaching staff at the centre.

5.3 Learners

This qualification is only for apprentices.

There are no formal academic entry requirements for the qualification; however, centres should ensure that the learner has the potential to achieve the qualification.

Learners must have the minimum levels of literacy and numeracy to complete the learning outcomes and assessments.

Centres should make learners with particular requirements aware of the content of the qualification and they should be given every opportunity to successfully complete the qualification. EAL will consider any reasonable suggestions for, and from, those with disabilities that would help them to achieve the learning outcomes without compromising the standards required.

Age Restrictions

Learners must be at least 16 years old.

5.4 Assessors

The centre must provide EAL with the names of any teachers, trainers or other individuals who will undertake internal assessment (referred to as assessors), so that these can be approved prior to them carrying out an assessment role. They must satisfy all awarding organisation requirements.

Assessors must have:

- A minimum of 2 years' occupational experience within the area they are assessing
- Knowledge and understanding of the assessment criteria they are assessing
- Knowledge and understanding of the qualification structure, content and assessment components
- An understanding of the assessment process.

Assessors will also:

- Be occupationally competent electricians
    - This can be evidenced by the assessor holding a relevant electrotechnical NVQ L3* and/or having registration with the JIB as 'Approved Electrician' status or EngTech status via the IET.
    - *Assessors who qualified before NVQs were developed should provide evidence of how they are occupationally competent (such as through a CV together with any relevant references).

  and
- Be working towards an appropriate assessment qualification
    - 'Candidate assessors' who are working towards their assessor qualifications must be countersigned by a qualified assessor.
    - Candidate assessors must have a clear action plan for achieving the assessor qualification.
    - Assessor approval will be withdrawn if a relevant qualification has not been attained within 18 months.

  or
- Hold an appropriate assessment qualification
    - This must be to a minimum of Level 3 standard, such as the L3 CAVA.

Assessors who hold earlier qualifications, such as D32, D33 or TQFE/TQSE, must also have evidence of Continuing Professional Development (CPD) to demonstrate compliance with the current assessor standards.

In some instances, the teaching staff will also take on the role of internal assessors. In such cases, the staff member must be able to demonstrate that they satisfy the requirements of both teaching staff and assessor criteria.

Assessor CPD

Assessors must demonstrate that they are up to date with the electrical industry. Their occupational competence must be updated regularly and periodically confirmed with CPD via the Assessment Centre. The External Quality Assurer will seek evidence of CPD for all approved Assessors at the centre.

It is the responsibility of each assessor to identify and make use of opportunities for CPD, such as industry conferences, access to trade journals, and Professional Body/Trade Association events, at least on an annual basis to enhance and upgrade their professional development and technical knowledge. It is imperative that records are kept of all such CPD opportunities/occasions and that they provide evidence of cascading such technical knowledge and industry intelligence to all relevant colleagues.

5.5 Markers: Technical Competence

Where centre-based assessments are marked by a person who does not come into the assessor category, the marker must have auditable technical competence in the subject. For example, for a science-based assessment, the person may have auditable competency in that subject area but not necessarily in electrotechnical installation or maintenance. Examples of electrotechnical (occupational) competency are detailed under the requirements for assessors.

5.6 Internal Quality Assurers

The centre must provide EAL with the names of any teachers, trainers, or other individuals who will undertake internal quality assurance so that they can be approved before they carry out this role.

The focus of internal quality assurance for this qualification is:

- The quality assurance of assessment procedures, including standardisation of assessment practice across different assessors within the centre
- Internal standardisation of marking and moderation of learner marks awarded for the units within the qualification.

Internal quality assurance staff must:

- Be familiar with the occupation(s) covered by this qualification
- Have knowledge and understanding of the qualification structure and content
- Understand the assessment process and the role of quality assurance.

Internal quality assurance staff must also:

- Be working towards an appropriate verification qualification
  or
- Hold an appropriate qualification, such as the ‘Level 4 Award in the Internal Quality Assurance of Assessment Processes and Practice’, or the ‘Level 4 Certificate in Leading the Internal Quality Assurance of Assessment Processes and Practice’.

Quality assurance staff who hold earlier qualifications (D34 or V1) should have CPD evidence to the most current standards.

Quality assurance staff are also required to have a minimum of occupational experience evidenced by having a building services engineering related qualification or proven sector competence and/or experience, plus access to relevant 'occupational expertise', which will enable them to conduct their quality assurance role appropriately. This evidence and access to 'occupational expertise' is quality assured by EAL.

CPD of internal quality assurance staff

The occupational experience of internal quality assurance staff must be updated on a regular basis and be periodically confirmed with CPD via the Assessment Centre. This will be quality assured by EAL.

It is the responsibility of each internal quality assurance staff member to identify and make use of opportunities for CPD, such as industry conferences, access to trade journals, and Professional Body/Trade Association events, at least on an annual basis to enhance and upgrade their professional development and technical knowledge. It is imperative that records are kept of all such CPD opportunities/occasions and that they provide evidence of cascading such technical knowledge and industry intelligence to all relevant colleagues.

5.7 Expert Witnesses

Where "Expert Witnesses" are used in the assessment process identified above, they must be sector-competent individuals who can attest to the learner's performance in the workplace.

It is not necessary for expert witnesses to hold an assessor qualification, as a qualified assessor must assess the performance evidence provided by an expert witness. Evidence from expert witnesses must meet the tests of validity, reliability, authenticity, and sufficiency.

Expert witnesses will need to demonstrate:

- They have relevant current knowledge of industry working practices and techniques
- That they have no conflict of interest in the outcome of their evidence

5.8 Staff Invigilating Onscreen Examinations

Members of staff with responsibility for invigilating onscreen examinations must know, understand and comply with the 'Procedures for Conducting the Exam Component within EAL Qualifications' (EAF1), which is published by EAL.

These members of staff must also:

- Have experience in conducting and controlling exam sessions
  or
- Be supervised by an individual experienced in conducting and controlling exam sessions.

Note: A teacher/tutor who has prepared the learners for the subject of the exam must not be the sole supervisor at any time during an exam for that subject(s).

5.9 Physical Resources

Safe working is a key consideration and all practical activities conducted within the centre must be subject to up-to-date risk assessments. All learners must be properly supervised and wear the correct personal protective equipment. Arrangements for first aid and emergency action in case of accident must be in place and signposted accordingly.

For the practical assessments, the required resources are detailed within the associated documentation (available from EAL Online Services).

6.0 Assessment

6.1 Introduction

The learner must pass **ALL** assessments to achieve the qualification.

The assessment of this qualification involves the following aspects:

Knowledge Units

EAL Code	Unit Title	On-screen Exam	Centre-marked Assessment
NETK3-01	Understand Health, Safety and Environmental Considerations	25 question MC exam Closed book	Practicals: 01A, 01B, 01C and 01D
NETK3-03	Understand How to Plan and Oversee Electrical Work Activities	45 question MC exam Covers: • Unit 3 - LOs 1 and 3 • Unit 4 - LOs 1, 2, 3, 6 and 7 Open book	Design Project: 04A or 04B Section 1 covers Unit 4 - LOs 4, 5 and 8 Section 2 covers Unit 3 - LO 2 *(Note only one of the projects needs to be completed)*
NETK3-04	Understand Design and Installation Practices and Procedures		
NETK3-05	Understand Terminations and Connections of Conductors	20 question MC exam Closed book	Practicals: 05A, 05B, 05C and 05D
NETK3-06A	Inspection, Testing and Commissioning	40 question MC exam Closed book	Practical 06A
NETK3-07	Understand Fault Diagnosis and Rectification	30 question MC exam Closed book	Practical 07
NETK3-08	Electrical Scientific Principles and Technologies	40 question MC exam ETK08A* for LOs 1-6 Closed book	Practical 08A (Transformers) Controlled Knowledge Assessment (Written exam) ETK08B* for LOs 7-12 Closed book
NETK3-18ED3	Understand the Requirements for Electrical Installations BS 7671:2018 (2024)	60 question MC exam Open book	N/A

Note: * Examinations ETK08A and ETK08B are graded on the first attempt only: **Pass**, **Merit**, **Distinction**, or **Refer**. Any resitting will only be subject to a **Pass** grade maximum.

Practical assessment contributes to approximately 50% of the assessments within the qualification.

Performance Units

- Locally assessed. (EAL will carry out verification and continuous monitoring via EQA visits to quality assure these)

IMPORTANT NOTE: The learner must complete the relevant knowledge units prior to completing the associated performance units.

General

Learners must achieve **ALL** components for the qualification to be awarded. If learners are unsuccessful in one or more of the assessment components, then the overall result for the qualification will be 'referred' and a certificate will not be awarded.

IMPORTANT NOTE: ALL components of a unit must be completed before claiming that unit on EAL's systems. The assessment components for each unit can be seen in the table on the previous page.

With the exception of the first attempt for the NETK3-08 on-screen exam and controlled knowledge written exam, assessments are graded Pass (or Refer) only.

The qualification is graded Pass or Fail only, but the two results from theory tests for NETK3-08 (on-screen exam and written controlled knowledge paper) will appear on the learner's Certificate of Unit Credit.

The following table indicates the knowledge unit assessment components that are included in the qualification, and for each component:

- Who is responsible for setting and marking the component
- How the component is quality assured

Assessment component	Set by	Marked by	Method of quality assurance	
			Internal	External
On-screen exam[1]	EAL	EAL	Exam invigilation	Verification and continuous monitoring via EQA visits
Centre-marked assessment[2]	EAL	Centre	On-going standardisation within the Centre (Including moderation)	Verification and continuous monitoring via EQA visits

[1] Refer to Section 6.2 External Assessment (On-screen Exam).
[2] Refer to Section 6.3 Centre Marked Assessment.

Specific Guidance - Permitted reference materials

IET Wiring Regulations and other permitted publications for use in open book assessments can contain bookmarks, page tags, highlighting, short notes referencing other parts of the document, and, where appropriate, corrigenda or amendments published by the IET or BSI.

Publications for use in assessments cannot contain any sample questions, answers, diagrams, formulae, detailed notation, or any content that could advantage the learner that is not part of the original document.

Centres should ensure a learner's reference materials cannot advantage them in any way. 'Clean' copies should be made available in cases where suitability is not clear.

Details of permitted reference materials can be found in the relevant assessment packs and Appendix 2 Centre Exam Specifications.

6.2 External Assessment (On-Screen Exam)

Key Points

- The external examinations are available on demand
- See Appendix 2 Centre Exam Specifications for details on time, number of questions and learning outcome coverage for each examination.

The exams must be undertaken by the learner under controlled conditions as specified by EAL. Refer to 'EAF1 – EAL Policy – Instructions for Conducting Examinations within EAL Qualifications' and related guidance in EAL Smarter Touch.

Resitting external assessment (on-screen exam)

Learners who fail to achieve a pass will be permitted to resit the exam after feedback and appropriate tuition has taken place.

The resits for externally set and marked exams will be subject to the current published charges.

IMPORTANT NOTE: The on-screen exam as part of NETK3-08 is graded on the first attempt only: Pass, Merit, Distinction, or Refer. Any resitting will only be subject to a Pass grade maximum.

For this exam, there are two versions available:

- **08A (First Attempt)**: Learners should be entered for this on their **first attempt only**
- **08A (Resit)**: For learners who need to re-sit the exam.

IMPORTANT NOTE: Centres must notify their EQA before booking any exam sitting past a learner's fifth attempt within any unit.

6.3 Centre Marked Assessment

General information regarding conducting controlled internal assessment can be found in the document 'EAL Guidance for Controlled Internal Assessment marked by the Centre' with specific guidance referenced from or contained within this qualification specification.

Internal assessment includes practical and/or knowledge assessments. These assessments are set by EAL and marked by members of the delivery team at the centre (see profiles of Assessors and Markers in Section 5). All assessment decisions are then subject to internal standardisation and external quality assurance.

Centres should maintain an assessment and feedback record for each learner, which details the evidence evaluated and the feedback given to the learner. This should include all documents and feedback for every assessment attempt. These records must be made available to the EQA upon request.

Centres are responsible for ensuring that centre-marked assessments are suitably controlled to ensure that assessment decisions are valid and reliable and that work submitted for assessment by learners is prepared and produced by them independently, without assistance from others, and free of plagiarism. Centres must impose necessary restrictions on learners to ensure this.

The knowledge assessment documents provide further guidance on assessment, and further support documents are also available on Smarter Touch.

Specific Guidance - Controlled internal assessment marked by the Centre

Assessor pack

The Assessor Packs contain relevant information for centre staff to use as reference/guidance. These documents must not be shared with learners as they may contain confidential information for centre staff only.

Learner pack

The Learner Packs relate to the individual practical and knowledge assessments. They contain instruction, feedback forms and marking checklists for each assessment. Learners will require access to each document when they are ready to be assessed. Assessors should issue the relevant Learner Pack to the learner. These documents must be controlled by the assessor and provided to the learner as and when required but not retained by the learner. All assessment documentation must be retained by the assessor and/or internal quality assurer within the controlled environment, unless where otherwise specified. Centres must ensure that the assessment criteria information is only made available to a learner during the active part of the assessment.

Learners must be appropriately supervised when undertaking the practical and knowledge assessments. The level of supervision must be sufficient to safeguard the learners' health and safety, and ensure the evidence generated is attributable to the learner.

Assessment decisions

Assessors are responsible for making assessment decisions in accordance with the assessment criteria detailed in the relevant specification and guidance documents. Assessor comments should also provide evidence indicating why assessment decisions have been awarded. This will facilitate the standardisation of assessment decisions within the centre and enable the moderator to check that assessment decisions are in line with the assessment criteria. Comments for further learner development should be included with feedback.

Centre assessors should allocate a mark for the assessment for each learner using the Assessment Checklist provided. No other sources of information should be used to make judgements about the quality and sufficiency of the evidence.

All materials should be retained securely and confidentially by the centre, in accordance with EAL policy.

Retaking centre-marked assessments

Learners are permitted to retake the centre-marked assessments post feedback and after any appropriate training/learning has taken place.

Standardisation of internal assessments

Members of the centre's internal quality assurance team have an important role in ensuring that internal assessment is standardised. In particular, they should work with assessors to ensure that the correct procedures are being followed at all times and that assessment decisions taken by different assessors are consistent, fair and reliable.

Key activities will include:

- Meeting with assessors (individually and collectively) throughout the course to discuss quality assurance, standardisation matters and provide support/guidance where needed
- Observing assessors and giving them feedback to help improve their assessment technique
- Sampling learner evidence across different learner cohorts to ensure that appropriate standards have been met
- Arranging cross-marking of learner work to compare results and agree benchmarks.

Moderation of centre marked assessments

Moderation is required to ensure that assessment staff are making accurate, consistent judgements against learning outcomes and assessment judgements made for any learner are accurate, fair and comparable with those made for all other learners.

Internal moderation should be conducted by all centres that undertake assessment and marking of assessments on behalf of EAL. The moderation process may sit as a feature of the centre's internal quality assurance process. Internal quality assurers must ensure this requirement is followed for centre marked assessments.

As part of centre engagements, a review of internal moderation records and external moderation of assessments may take place. Your assigned AO moderator may be different from your assigned Centre EQA depending on the qualifications and units you deliver.

Further detail, including internal moderation staff requirements, can be found in 'EAL Centre Requirements for Moderation of Centre Marked Assessments' available on Smarter Touch.

Specific Guidance - Controlled Knowledge Assessment (Written Exam) for Unit NETK3-08B: Electrical Scientific Principles and Technologies (Learning outcomes 7-12)

This assessment should be treated as a controlled assessment therefore the centre must impose necessary restrictions on the learners. Guidance sheets have also been created to hand out to the learners to ensure they are aware how to complete the short answer questions.

The test specification is in Appendix 2.

This is a centre-marked and graded short answer written paper. This assessment requires standardisation, including moderation of learner marks. EAL will carry out verification of final marks.

The written paper and marking scheme are password protected. Please contact EAL customer care for the password.

IMPORTANT NOTE: The assessment is graded Pass, Merit, Distinction or Refer on the first attempt only. Any resitting will only be subject to a Pass grade maximum. This has been stipulated by the employer-led trailblazer group.

Resits should use a different version of the written paper wherever possible, and not a version already attempted by the learner.

Specific Guidance - Practical assessment resources

Practical assessment rigs (as described in the relevant assessment documents) must only be used for formal, recorded assessments. They must not be used for any training/teaching prior to assessment. All assessment rigs should be kept secure, with no learner access, between assessments.

6.4 Assessment of Performance

Evidence that is sourced from the real working environment for Performance Units must be naturally occurring, assessed on a minimum of two occasions, and can be generated by:

- Direct observation of performance in the workplace by a qualified assessor and/or testimony from an expert witness subject to the activity being assessed. This will be the preferred source of evidence
  or
- Candidate's reflective account of performance and work plans / work-based products, e.g., risk assessment documentation, method statements, diagrams, drawings, specifications, customer testimony, authorised and authenticated photographs/images, and audio-visual records of work completed together with candidate questioning
  or
- Evidence from prior achievements that demonstrably match the requirements of the Performance Unit
  or
- Witness testimony only.

Meeting the assessment requirements of Performance Units will need initial discussions and assessment planning between the learner and assessor, as an essential activity to identify opportunities to assess real working environment evidence, gaps that need to be filled or opportunities to recognise the prior achievement of the learner.

Please note any particular assessment requirements of the performance unit - which is detailed in the Unit Information (Assessment).

Learners must have received the appropriate underpinning knowledge and skills training to undertake the assessment outlined in the performance units safely and correctly. Assessment must only occur when the learner is suitably prepared and ready.

Apprentices must be adequately supervised in the workplace in accordance with relevant legislation. This is particularly important when working toward the performance units involving working at height, inspection and testing, fault diagnosis, or any other activity incorporating work on or near to live parts.

All activities must be carried out in accordance with the Electricity at Work Regulations 1989.

IMPORTANT NOTE: For apprentices **registered from 04/09/23 in England only**, there will be an expanded assessment requirement for the qualification units:

- NETP3-01: Apply Health and Safety and Environmental Considerations
- NETP3-04A: Apply Design and Installation Practices and Procedures
- NETP3-05A: Termination and Connection of Conductors
- NETP3-09: Apply Practices and Procedures for Maintenance.

At least one of the on-site assessments of performance for each of the above units must occur in a commercial or industrial setting. (i.e. on-site assessment must not occur exclusively in a domestic context).

Domestic premises are:

- Designed to accommodate a single family
- Houses in multiple occupation comprising a number of self-contained units, each designed to accommodate a single person or family
- Sheltered housing, dwelling units
- Supported housing.

It also includes bungalows, resident areas of care homes, multi-storey houses, individual flats and maisonettes, apartment buildings, mobile homes, holiday homes, sheltered housing, shared houses and houses divided into several self-contained single-family dwelling units, and student accommodation.

Domestic premises **do not include** large or extensive communal areas used by residents of more than one single dwelling. Large or extensive communal residential areas may suffice for the commercial / industrial assessment requirement. Examples of these areas would be large catering kitchens in care homes, student accommodation communal areas such as receptions, bathrooms intended for the use of more than one residential unit, boiler rooms servicing several individual dwellings, service risers or stairways, and landings servicing many individual flats, typically with an incoming three-phase electricity supply, etc.

Specific Guidance – Unit NETP3/01 Apply Health, Safety and Environmental Considerations

Performance Unit NETP3/01 is subject to direct observation on at least two separate occasions in the workplace by a qualified assessor.

Reflective accounts are **NOT** accepted as evidence for Unit NETP3/01. Any outstanding performance criteria that are not met through direct observation must be supplemented by alternate evidence provided by the employer.

IMPORTANT NOTE: As a minimum, one of the two direct observations must be a physical, face-to-face, site visit with an assessor. The second direct observation may be a live-streamed online assessment with an assessor. Both observations should be fully documented and made available for quality assurance.

Replication (Simulation) (Only for serving HM Forces personnel, undertaking training with the RSME)

Only for serving HM Forces personnel, undertaking training with the RSME; who will then undertake electrical duties as part of their role and who undertake performance-based criteria in environments where it is unlikely that the technical expertise would be available then an alternative assessment approach is required. To verify installation work, the method of ‘replication’ will be permitted. Replication is not for resettlement courses or retraining for civilian duties and the like.

This replication must be of a type that if the electrical work was carried out within a normal electrical contracting environment there is no difference apart from the location of the work. For example, if a work replication was transported to a “real construction site” then no

difference in the work practices, quality or ,function would exist. Suggestions for replication of electrical work should be demonstrated with at least two reproductions covering both the domestic and commercial/industrial sectors.

Typical installations that may be considered for replication could include:

- The wiring of a domestic installation to comply with BS7671. This may simply be a replication of a starter home with the layout commonly found that includes a living room, kitchen/diner, bedroom, and bathroom. The installation would include general lighting, general power and supplies for an electric cooker, water heater, boiler, extractor fans (as required by building regulations)

- The wiring of a three-phase machine through normal control equipment from an existing distribution board in a factory or other similar installation. This installation would include the different cable types and containment/support systems. The control and overload of the equipment must be appropriate for the machine.

Replication (Simulation) of assessment is not permitted except for the above, which must be approved by EAL and TESP, info@the-esp.org.uk.

Centre guidance for developing assessments for simulation/replication is available in Smarter Touch.

7.0 Quality Control of Assessments

There are two major points where EAL interacts with the Centre in relation to the external quality control of assessment for a qualification and these are:

- Approval - when a Centre take on new qualifications, EAL, normally through an external verifier ensures that the Centre is suitably equipped and prepared to deliver the new qualification.
- Monitoring - throughout the ongoing delivery of the qualification EAL, through external verification monitoring and other mechanisms must maintain and the quality and consistency of assessment of the qualification.

Approval

In granting approval, EAL, normally through its external verifiers, must ensure that the prospective Centre:

- Meets any procedural requirements specified by EAL
- Has sufficient and appropriate physical and staff resources
- Meets relevant health and safety and/or equality and access requirements
- Has a robust plan for the delivery, assessment and quality assurance for the qualification/units.

EAL may decide to visit a Centre to view evidence or may undertake this via other means and there must be a clear rationale for the method(s) deployed.

Monitoring

EAL, through external monitoring and other mechanisms will ensure that a strategy is developed and deployed for the ongoing EAL monitoring of the Centre.

This strategy must be based on an active risk assessment of the Centre. In particular, the strategy must identify the apprentice, assessor, and internal verifier sampling strategy to be deployed and the rationale behind this:

- That the Centre's internal quality assurance processes are effective in assessment.
- That sanctions are applied to a Centre where necessary and that corrective actions are taken by the Centre and monitored by the EAL external quality assurer (EQA).
- That reviews of EAL's external auditing arrangements are undertaken.

Appendix 1: Unit Summaries

App. 1a: Knowledge Unit Summaries

Unit NETK3-01: Understand Health, Safety and Environmental Considerations

This unit will provide learners with an understanding of the relevant health and safety legislation, practices and procedures when installing and maintaining electrical systems and equipment. The knowledge covered in this unit underpins the practical application of health and safety legislation, practices and procedures.

Learning Outcomes

1. Understand how relevant legislation applies in the workplace.
2. Understand the procedures for dealing with environmental and health and safety situations in the work environment.
3. Be able to demonstrate and understand the procedures for establishing a safe working environment.
4. Understand the requirements for identifying and dealing with hazards in the work environment.

Assessment

This unit will be assessed by one on-screen exam and four centre marked practical assessments.

Unit NETK3-03: Understand How to Plan and Oversee Electrical Work Activities

This unit is designed to enable learners to understand the practices and procedures used when planning electrical installation and maintenance work activities. Its content is the knowledge needed by a learner to underpin the application of skills for overseeing and organising the work environment.

Learning Outcomes

1. Understand the requirements for liaising with others when organising and overseeing work activities.
2. Understand the requirements for organising and overseeing work programmes.
3. Understand the requirements for organising the provision and storage of resources that are required for work activities.

Assessment

This unit will be assessed by one on-screen exam and a centre marked project. These assessments also cover a range of learning outcomes from NETK3-04, see Section 6 for detail.

Unit NETK3-04: Understand Design and Installation Practices and Procedures

This unit is designed to enable the learner to develop the skills required, and apply the associated knowledge, in order that they are able to demonstrate the competence required to design, prepare and install wiring systems and associated equipment in buildings, structures and the environment in accordance with approved industry practices, statutory and non-statutory regulations:

- The Electricity at Work Regulations (1989)
- The current edition of BS 7671
- Health and Safety at Work etc. Act (1974)
- Building Regulations (2000).

Learning Outcomes

1. Understand how to prepare for the installation of wiring systems.
2. Understand the applications of wiring systems.
3. Understand the practices and procedures for carrying out electrical work.
4. Understand the characteristics and applications of supply systems and consumer's equipment.
5. Understand earthing and protection.
6. Understand protection against overcurrent.
7. Understand electrical systems and circuits.
8. Understand the electrical design procedure.

Assessment

This unit will be assessed by one on-screen exam and a centre marked project. These assessments also cover a range of learning outcomes from NETK3-03, see Section 6 for detail.

Unit NETK3-05: Terminations and Connections of Conductors

This unit is designed to enable learners to understand and interpret the principles, practices and legislation associated with the termination and connection of conductors and cables in electrical systems. Its content is the knowledge needed by a learner to underpin the application of skills for terminating and connecting conductors and cables in electrical systems in accordance with statutory and non-statutory regulations/requirements.

Learning Outcomes

1. Understand the regulatory requirements and procedures for terminating and connecting conductors and cables in electrical wiring systems and equipment.
2. Understand the procedures and applications of different methods of terminating, connecting and supporting conductors and cables in electrical wiring systems and equipment.

Assessment

This unit will be assessed by one on-screen exam and four centre marked practical assessments.

Unit NETK3-06A: Inspection, Testing and Commissioning

This unit is designed to enable learners to understand principles, practices and legislation for the initial verification of electrical installations with statutory and non-statutory regulations and requirements. Its content is the knowledge needed by a learner to underpin the application of skills for the inspection, testing, commissioning and certification of electrical installations.

Learning Outcomes

1. Understand the requirements for completing the safe isolation of electrical circuits and installations.
2. Understand the requirements for inspection of electrical installations.
3. Understand the requirements for completing the inspection of electrical installations prior to their being placed into service.
4. Understand the requirements for the safe testing and commissioning of electrical installations.
5. Understand the requirements for testing before circuits are energised.
6. Understand the requirements for testing energised installations.
7. Understand the requirements for the completion of documentation.
8. Be able to confirm safety of system and equipment prior to completion of inspection, testing and commissioning.
9. Be able to carry out inspection of electrical installations prior to them being placed into service.
10. Be able to test electrical installations prior to them being placed into service.
11. Be able to commission electrical systems and equipment.

Assessment

This unit will be assessed by one on-screen exam and a centre marked practical assessment.

Unit NETK3-07: Understand Fault Diagnosis and Rectification

This unit is designed to enable learners to understand principles, practices and legislation associated with diagnosing and correcting electrical faults in electrical systems and equipment in buildings, structures and the environment in accordance with statutory and non-statutory regulations and requirements. Its content is the knowledge needed by a learner to underpin the application of skills used for fault diagnosis and correction in electrical systems and equipment in buildings, structures and the environment.

Learning Outcomes

1. Understand the health and safety requirements relevant to fault diagnosis.
2. Understand the importance of reporting and communication in fault diagnosis.
3. Understand the nature and characteristics of electrical faults.
4. Understand the fault diagnosis procedure.
5. Understand the procedures and techniques for correcting electrical faults.
6. Perform fault diagnosis.

Assessment

This unit will be assessed by one on-screen exam and a centre marked practical assessment.

Unit NETK3-08: Electrical Scientific Principles and Technologies

This unit is designed to enable learners to understand the relationship between electrical scientific principles and the competencies required of a qualified electrical operative. Its content is the knowledge needed by a learner to underpin the application of skills in the installation and maintenance of electrical systems and equipment.

Learning Outcomes

1. Understand mathematical principles which are appropriate to electrical installation, maintenance and design work.
2. Understand standard units of measurement used in electrical installation, maintenance and design work.
3. Understand basic mechanics and the relationship between force, work, energy and power.
4. Understand the relationship between resistance, resistivity, voltage, current and power.
5. Understand the fundamental principles which underpin the relationship between magnetism and electricity.
6. Understand the types, applications and limitations of electronic components in electrical systems and equipment.
7. Understand electrical supply systems.
8. Understand how different electrical properties can affect electrical circuits, systems and equipment.
9. Understand the operating principles and applications of DC machines and AC motors.
10. Understand the operating principles of electrical components.
11. Understand the principles and applications of electrical lighting systems.
12. Understand the principles and applications of electrical heating.

Assessment

This unit will be assessed by one on-screen exam, a centre marked practical assessment and a centre marked controlled knowledge assessment (written exam).

Unit NETK3-18ED3: Understand the Requirements for Electrical Installations BS 7671:2018 (2024)

This unit gives the learner an understanding of the full content of BS 7671:2018 (2024) Amendment 3, and how this applies to electrical installations within its scope.

Learning Outcomes

1. Understand the scope, object and fundamental principles of BS 7671.
2. Understand the definitions used within BS 7671.
3. Understand how to assess the general characteristics of electrical installations.
4. Understand requirements of protection for safety for electrical installations.
5. Understand the requirements for selection and erection of equipment for electrical installations.
6. Understand the requirements of inspection and testing of electrical installations.
7. Understand the requirements of special installations or locations as identified in BS 7671.
8. Understand the information contained within Part 8 and the appendices of BS 7671.

Assessment

This unit will be assessed by one on-screen exam.

App. 1b: Performance Unit Summaries

Unit NETP3-01: Apply Health, Safety and Environmental Considerations

Prior to undertaking this unit, a learner must provide auditable evidence that they have the relevant knowledge and understanding as detailed in the unit NETK3-01: Understand Health, Safety and Environmental Considerations for Electrical Systems.

This unit is designed to enable learners to develop the skills and apply the relevant knowledge associated with health and safety legislation, practices and procedures when installing and maintaining electrical systems and equipment. In delivery of this unit an emphasis shall be made to the learner on the necessity to keep up to date with the latest standards, technologies and practices which relate to and affect the topics covered in this unit. This is in then in keeping with good engineering practice.

Learning Outcomes

1. Be able to apply relevant health and safety legislation in the workplace.
2. Be able to assess the work environment for hazards and identify remedial actions in accordance with health and safety legislation.
3. Be able to apply methods and procedures to ensure work on site is in accordance with health and safety legislation.
4. Be able to work in accordance with environmental legislation for electrical services.

Unit NETP3-03: Organise and Oversee the Electrical Work Environment

Prior to undertaking this unit, a learner must provide auditable evidence that they have the relevant knowledge and understanding as detailed in the unit NETK3-03: Understand How to Plan and Oversee Electrical Work Activities.

This unit is designed to enable learners to develop the skills required, and apply the associated knowledge, so that they can demonstrate that they can implement practices and procedures for overseeing and organising the work environment for the installation of electrical systems and equipment. In delivery of this unit an emphasis shall be made to the learner on the necessity to keep up to date with the latest standards, technologies and practices which relate to and affect the topics covered in this unit. This is in then in keeping with good engineering practice.

Learning Outcomes

1. Be able to provide relevant people with technical and functional information for work on electrical systems and equipment.
2. Be able to oversee health and safety during work on electrical systems and equipment.
3. Be able to co-ordinate liaison with other relevant persons during work activities.
4. Be able to organise and oversee work activities and operations.
5. Be able to organise a programme for working on electrical systems and equipment.
6. Be able to organise the resource requirements for work on electrical systems and equipment.

Unit NETP3-05A: Termination and Connection of Conductors

This unit is designed to enable the learner to develop the skills required and apply the associated knowledge so that they can demonstrate the competence required to terminate and connect conductors and cables in electrical systems in accordance with approved industry practices, statutory and non-statutory regulations, including:

- The Electricity at Work Regulations (1989)
- The current edition of BS 7671
- Health and Safety at Work etc. Act (1974)
- Building Regulations (2000).

In delivery of this unit an emphasis shall be made to the learner on the necessity to keep up to date with the latest standards, technologies and practices which relate to and affect the topics covered in this unit. This is in then in keeping with good engineering practice.

Learning Outcomes

1. Prepare to terminate and connect cables and conductors.
2. Terminate and connect conductors and cables.

Unit NETP3-06: Inspect, Test and Commission Electrical Systems

This unit is designed to enable the learner to develop the skills required, and apply the associated knowledge, so that they can demonstrate the competence required to inspect, test, commission and certify electrical systems and equipment in buildings, structures and the environment in accordance with approved industry practices, statutory and non-statutory regulations, including:

- The Electricity at Work Regulations (1989)
- The current edition of BS 7671
- Health and Safety at Work etc. Act (1974)
- Building Regulations (2000).

In delivery of this unit an emphasis shall be made to the learner on the necessity to keep up to date with the latest standards, technologies and practices which relate to and affect the topics covered in this unit. This is in then in keeping with good engineering practice.

Learning Outcomes

1. Be able to confirm safety of the system and equipment prior to completion of inspection, testing and commissioning in accordance with statutory and non-statutory regulations.
2. Be able to inspect electrical systems and equipment.
3. Be able to test and commission electrical systems and equipment.

Unit NETP3-07: Apply Fault Diagnosis and Rectification

This unit is designed to enable the learner to develop the skills required, and apply the associated knowledge, so that they can demonstrate the competence required to diagnose and correct electrical faults in electrical systems and equipment in buildings, structures and the environment in accordance with approved industry practices, statutory and non-statutory regulations, including:

- The Electricity at Work Regulations (1989)
- The current edition of BS 7671
- Health and Safety at Work etc. Act (1974)
- Building Regulations (2000).

In delivery of this unit an emphasis shall be made to the learner on the necessity to keep up to date with the latest standards, technologies and practices which relate to and affect the topics covered in this unit. This is in then in keeping with good engineering practice.

Learning Outcomes

1. Prepare to carry out fault diagnosis
2. Carry out fault diagnosis.
3. Carry out fault rectification.

App. 1c: Optional Performance Unit Summaries

Learners are to complete **ONE** of the following performance units:

Unit NETP3-04A: Apply Design and Installation Practices and Procedures

This unit is designed to enable the learner to develop the skills required and apply the associated knowledge so that they can demonstrate the competence required to plan, prepare and install wiring systems and associated equipment in buildings, structures and the environment in accordance with approved industry practices, statutory and non-statutory regulations, including:

- The Electricity at Work Regulations (1989)
- The current edition of BS 7671
- Health and Safety at Work etc. Act (1974)
- Building Regulations (2000).

In delivery of this unit an emphasis shall be made to the learner on the necessity to keep up to date with the latest standards, technologies and practices which relate to and affect the topics covered in this unit. This is in then in keeping with good engineering practice.

Learning Outcomes

1. Prepare to install wiring systems, enclosures and associated equipment.
2. Interpret appropriate information for the installation of wiring systems, enclosures and associated equipment.
3. Install wiring systems, and equipment in accordance with current relevant statutory and non-statutory regulations.
4. Confirm the quality of the completed work.

Unit NETP3-09: Apply Practices and Procedures for Maintenance

This unit is designed to enable the learner to develop the skills required, and apply the associated knowledge, so that they can demonstrate the competence required to maintain electrical systems and equipment in accordance with approved industry practices, statutory and non-statutory regulations, including:

- The Electricity at Work Regulations (1989)
- The current edition of BS 7671
- Health and Safety at Work etc. Act (1974)
- Building Regulations (2000).

In delivery of this unit an emphasis shall be made to the learner on the necessity to keep up to date with the latest standards, technologies and practices which relate to and affect the topics covered in this unit. This is in then in keeping with good engineering practice.

Learning Outcomes

1. Prepare to carry out electrical maintenance
2. Carry out electrical maintenance.

Appendix 2: Centre Exam Specifications

Unit NETK3-01: Understand Health, Safety, and Environmental Considerations	
Assessment Type: On-Screen MCQ Exam, Closed Book Number of Questions: 25 Time Allowed: 40 Minutes The pass mark is normally expected to be around 60%. The examination will cover the knowledge learning outcomes of the unit as follows:	
Learning Outcome	**Number of Questions**
1. Understand how relevant legislation applies in the workplace	4 *(16%)*
2. Understand the procedures for dealing with environmental, health, and safety situations in the work environment.	6 *(24%)*
3. Understand the procedures for establishing a safe working environment.	7 *(28%)*
4. Understand the requirements for identifying and dealing with hazards in the work environment	8 *(32%)*
Total:	**25**

Note:

- To achieve the unit, the learner must also pass the centre-marked practical assessments.

Unit NETK3-03: Understand How to Plan and Oversee Electrical Work Activities

AND

Unit NETK3-04: Understand Design and Installation Practices and Procedures

(A single test covering learning outcomes across the two units as indicated below)

Assessment Type: On-Screen MCQ Exam, Open Book
Number of Questions: 45
Time Allowed: 80 Minutes

The pass mark is normally expected to be around 60%.

Open book (from 01.09.2018), the following publications are permitted:

- BS 7671:2018(2022) Amendment 2 and BS 7671:2018 (2024) Amendment 3
- IET On-Site Guide
- Unite the Union Book 'Electrician's Guide to Good Electrical Practice'.

Amendment 3 is a loose-leaf addendum to BS 7671:2018 (2022) (the brown cover book). *It is available for free download on the IET website.*

Candidates may also use a non-programmable calculator.

The examination will cover the knowledge learning outcomes of the units as follows:

Learning Outcome	Number of Questions
NETK3-03: Understand How to Plan and Oversee Electrical Work Activities	
1. Understand the requirements for liaising with others when organising and overseeing work activities.	4 *(9%)*
2. Understand the requirements for organising and overseeing work programmes.	N/A
3. Understand the requirements for organising the provision and storage of resources that are required for work activities.	6 *(13%)*
NETK3-04: Understand Design and Installation Practices and Procedures	
1. Understand how to prepare for the installation of wiring systems.	8 *(18%)*
2. Understand the applications of wiring systems.	10 *(22%)*
3. Understand the practices and procedures for carrying out electrical work.	7 *(16%)*
4. Understand the characteristics and applications of supply systems and consumer's equipment.	N/A
5. Understand earthing and protection.	N/A
6. Understand protection against overcurrent.	5 *(11%)*
7. Understand electrical systems and circuits.	5 *(11%)*
8. Understand the electrical design procedure.	N/A
Total:	**45**

Notes:

- To achieve the units, the learner must also complete the centre-marked project.
- The project covers NETK3-03 learning outcome 2 and NETK3-04 learning outcomes 4, 5 and 8.
- Please refer to Section 6.1 for further guidance on permitted reference materials.

Unit NETK3-05: Understand Terminations and Connections of Conductors

Assessment Type: On-Screen MCQ Exam, Closed Book
Number of Questions: 20
Time Allowed: 40 Minutes

The pass mark is normally expected to be around 60%.

Candidates may use a non-programmable calculator.

The examination will cover the knowledge learning outcomes of the unit as follows:

Learning Outcome	Number of Questions
1. Understand the regulatory requirements and procedures for terminating and connecting conductors and cables in electrical wiring systems and equipment.	12 *(60%)*
2. Understand the procedures and applications of different methods of terminating and connecting conductors and cables in electrical wiring systems and equipment.	8 *(40%)*
Total:	**20**

Note:

- To achieve the unit, the learner must also pass the centre-marked practical assessments.

Unit NETK3-06A: Inspection, Testing and Commissioning

Assessment Type: On-Screen MCQ Exam, Closed Book
Number of Questions: 45
Time Allowed: 90 Minutes

The pass mark is normally expected to be around 60%.

Candidates may use a non-programmable calculator.

The examination will cover the knowledge learning outcomes of the unit as follows:

Learning Outcome	Number of Questions
1. Understand the requirements for completing the safe isolation of electrical circuits and installations.	6 *(13%)*
2. Understand the requirements for inspection of electrical installations.	4 *(9%)*
3. Understand the requirements for completing the inspection of electrical installations prior to their being placed into service.	6 *(13%)*
4. Understand the requirements for the safe testing and commissioning of electrical installations.	5 *(11%)*
5. Understand the requirements for testing before circuits are energised.	8 *(18%)*
6. Understand the requirements for testing energised installations.	12 *(27%)*
7. Understand the requirements for the completion of documentation.	4 *(9%)*
8. Be able to confirm safety of system and equipment prior to completion of inspection, testing and commissioning.	N/A
9. Be able to carry out inspection of electrical installations prior to them being placed into service.	N/A
10. Be able to test electrical installations prior to them being placed into service.	N/A
11. Be able to commission electrical systems and equipment.	N/A
Total:	**45**

Notes:

- To achieve the unit, the learner must also pass the centre-marked practical assessment.
- The practical assessment covers learning outcomes 8-11.

Unit NETK3-07: Understand Fault Diagnosis and Rectification

Assessment Type: On-Screen MCQ Exam, Closed Book
Number of Questions: 30
Time Allowed: 60 Minutes

The pass mark is normally expected to be around 60%.

Candidates may use a non-programmable calculator.

The examination will cover the knowledge learning outcomes of the unit as follows:

Learning Outcome	Number of Questions
1. Understand the health and safety requirements relevant to fault diagnosis.	3 *(10%)*
2. Understand the importance of reporting and communication in fault diagnosis.	3 *(10%)*
3. Understand the nature and characteristics of electrical faults.	11 *(37%)*
4. Understand the fault diagnosis procedure.	10 *(33%)*
5. Understand the procedures and techniques for correcting electrical faults.	3 *(10%)*
6. Perform fault diagnosis.	N/A
Total:	**30**

Notes:

- To achieve the unit, the learner must also pass the centre-marked practical assessment.
- The practical assessment covers learning outcome 6.

Unit NETK3-08: Electrical Scientific Principles and Technologies

ETK3-08A (NETK3-08TEST)

Assessment Type: On-Screen MCQ Exam, Closed Book

Number of Questions: 40

Time Allowed: 90 Minutes

The **first attempt only** is graded. The grade boundaries are normally expected to be around: Pass 50% (20 marks), Merit 65% (26 marks), Distinction 80% (32 marks).

Any resits will only be subject to a Pass grade maximum.

The grade from this assessment is stand-alone and does not contribute towards an overall qualification grade.

Candidates may use a non-programmable calculator.

The examination will cover the knowledge learning outcomes of the unit as follows:

Learning Outcome	Number of Questions
1. Understand mathematical principles which are appropriate to electrical installation, maintenance and design work.	2 *(5%)*
2. Understand standard units of measurement used in electrical installation, maintenance and design work.	5 *(12.5%)*
3. Understand basic mechanics and the relationship between force, work, energy and power.	7 *(17.5%)*
4. Understand the relationship between resistance, resistivity, voltage, current and power.	15 *(37.5%)*
5. Understand the fundamental principles which underpin the relationship between magnetism and electricity.	7 *(17.5%)*
6. Understand the types, applications and limitations of electronic components in electrotechnical systems and equipment.	4 *(10%)*
Total:	**40**

Note:

- To achieve the unit, the learner must pass ETK3-08A on-screen exam, the centre-marked practical assessment covering transformers and ETK3-08B the centre-marked, controlled knowledge assessment (written exam).

Unit NETK3-08: Electrical Scientific Principles and Technologies

ETK3-08B

Assessment Type: Centre-Marked, Controlled Knowledge Assessment (Written Exam), Closed Book

Number of Questions: 26

Number of Marks: 78

Time Allowed: 120 Minutes

The **first attempt only** is graded. The grade boundaries are: Pass 50% (39 marks), Merit 65% (51 marks), Distinction 80% (63 marks).

Any resits will only be subject to a Pass grade maximum.

The grade from this assessment is stand-alone and does not contribute towards an overall qualification grade.

Candidates may use a non-programmable calculator.

The examination will cover the knowledge learning outcomes of the unit as follows:

Learning Outcome	Number of Questions	Allocation of Marks
7. Understand electrical supply systems.	6	18 *(23%)*
8. Understand how different electrical properties can affect electrical circuits, systems and equipment.	8	24 *(31%)*
9. Understand the operating principles and applications of DC machines and AC motors.	7	12 *(15%)*
10. Understand the operating principles of electrical components.	15	9 *(11.5%)*
11. Understand the principles and applications of electrical lighting systems.	7	9 *(11.5%)*
12. Understand the principles and applications of electrical heating.	4	6 *(8%)*
Total:	**40**	**78**

Notes:

- To achieve the unit, the learner must pass ETK3-08A on-screen exam, the centre-marked practical assessment covering transformers and ETK3-08B the centre-marked, controlled knowledge assessment (written exam).
- There are currently four papers available for the first attempt and resits (if required). Papers can be delivered in any order; however, it is recommended that they are rotated so different learner cohorts can undertake different assessments over time, e.g., in year one, paper 1 is delivered to apprentice groups and paper 2 is the resit.
- The written papers and marking schemes are password protected. Please contact EAL customer care for the password.

Unit NETK3-18ED3: Understand the Requirements for Electrical Installations BS 7671:2018 (2024)

(Amendment 3 Exam)

Assessment Type: On-Screen Open Book
Number of Questions: 60
Time Allowed: 120 Minutes

The pass mark is normally expected to be around 60%.

This is an open book exam requiring reference to the IET Wiring Regulations Eighteenth Edition BS 7671:2018 (2022) Amendment 2 and BS 7671:2018 (2024) Amendment 3.
Amendment 3 is a loose-leaf addendum to BS 7671:2018 (2022) (the brown cover book). It is available for free download on the IET website.

Candidates may also use a non-programmable calculator.

The examination will cover the knowledge learning outcomes of the units as follows:

Learning Outcome	Number of Questions
1. Understand the scope, object, and fundamental principles of BS 7671.	4 *(7%)*
2. Understand the definitions used within BS 7671.	2 *(3%)*
3. Understand how to assess the general characteristics of electrical installations.	6 *(10%)*
4. Understand requirements of protection for safety for electrical installations.	15 *(25%)*
5. Understand the requirements for selection and erection of equipment for electrical installations.	14 *(23%)*
6. Understand the requirements of inspection and testing of electrical installations.	4 *(7%)*
7. Understand the requirements of special installations or locations as identified in BS 7671.	7 *(12%)*
8. Understand the information contained within Part 8 and the appendices of BS 7671.	8 *(13%)*
Total:	**60**

Notes:

- Please refer to Section 6.1 for further guidance on permitted reference materials.
- Please see the informative note in Appendix 3 in relation to pathway transfer.

Appendix 3: Learner Registration and Certification

Learners must be registered with EAL on a code which relates to the qualification. This must be completed prior to assessment. Both learner registration and certification can be completed online at the EAL Website www.eal.org.uk. For paper-based registration and certification use the appropriate forms. These are located on the EAL Website, for guidance on registration and Certification please refer to the Registration and Certification User Guide.

To register the learner on the chosen qualification/pathway code:

Qualification Title	Code
Pathway NETBI – Installation *(BS 7671:2018 (2022) Amendment 2)*	601/7345/2BI
Pathway NETBI - Installation A new pathway updated for BS 7671:2018 (2024) Amendment 3. A pathway transfer from 601/7345/2BI is available for learners yet to sit the NETK3-18ED2 exam.	601/7345/2BIX
Pathway NETBM – Maintenance *(BS 7671:2018 (2022) Amendment 2)*	601/7345/2BM
Pathway NETBM - Maintenance A new pathway updated for BS 7671:2018 (2024) Amendment 3. A pathway transfer from 601/7345/2BM is available for learners yet to sit the NETK3-18ED2 exam.	601/7345/2BMX
EAL Level 3 Electrotechnical Qualification A new version of the qualification **from 04.09.23** *(Installation or maintenance will no longer appear on the learner's certificate as a pathway, but will be indicated instead as the chosen optional unit, on the certificate of unit credit)* Units: NETK3-06A, NETP3-05A, and NETP3-04A have been added to the qualification for registrations from 04.09.23 (C Suffix on registration code). Learners registered prior to this date who are working toward earlier unit equivalents on B suffix (NETK3-06, NETP3:04, and 05), and must complete the version of the qualification they have been registered on.	601/7345/2C
EAL Level 3 Electrotechnical Qualification A new pathway updated for BS 7671:2018 (2024) Amendment 3. **For all new registrations from 12.08.24** A pathway transfer from 601/7345/2C is available for learners yet to sit the NETK3-18ED2 exam.	601/7345/2D

Please note any learners registered on earlier pathways will be working toward the previous version of the qualification with the older wiring regulation unit (NETK3-18ED).

Learners can be transferred by the Centre from the previous version of this qualification to the Amendment 3 version by completing a 'pathway transfer'. Instructions on how to do transfer a learner pathway can be found within the EAL Hub's Help Centre:

- EAL Hub > Help Centre > Online Services > Learner Pathway Transfer.

For further information, please contact EAL Customer Experience:

Tel: +44 (0)1923 652 400
Email: Customer.Experience@eal.org.uk

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