

apprenticeship FRAMEWORK

Electrotechnical (England)

IMPORTANT NOTIFICATION FOR ALL APPRENTICESHIP STARTS FROM 22 AUGUST 2017

Modifications to SASE came into effect on 22 August 2017. Accordingly, SASE publication DFE-00167-2017 applies both to new Apprenticeship starts from 22 August 2017 and all Apprenticeships commenced before and not completed by 22 August 2017.

For more details of the changes please read the following preface page to the framework document.

Latest framework version?

Please use this link to see if this is the latest issued version of this framework:

afo.sscalliance.org/frameworkslibrary/index.cfm?id=FR00868

Issue date: 27 September 2011

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CHANGES TO THE ENGLISH AND MATHS REGULAR MINIMUM REQUIREMENTS FOR APPRENTICESHIP STARTS FROM 22 AUGUST 2017 AND APPRENTICESHIPS REMAINING INCOMPLETE ON 22 AUGUST 2017.

Modifications to SASE came into effect on 22 August 2017. Accordingly, SASE publication DFE-00167-2017 applies both to new Apprenticeship starts from 22 August 2017 and all Apprenticeships commenced before and not completed by 22 August 2017.

The modifications allow for an exemption to the English and Maths regular minimum requirements for people with Special Educational Needs, Learning Difficulties or Disabilities. This means that adjusting the minimum requirements to Entry Level 3 in English and Maths can be considered by the provider, on an individual and case-by-case basis, where **all of the conditions** of the updated SASE section 18 (Intermediate level) or section 37 (Advanced level) for have been satisfied and can be evidenced.

Full details relating to the exceptions eligibility criteria are contained in:

Sections 15-23 of SASE for Intermediate Level Apprenticeships
Sections 34-42 of SASE for Advanced Level Apprenticeships

When applying this exemption, providers must **STILL** consider how to enable the Apprentice to access further literacy and numeracy development – including Level 1 and Level 2 courses – as part of their overall training provision.

The modifications to SASE have also extended the list of qualifications that meet the minimum English requirements to allow for a British Sign Language (BSL) qualification, at the appropriate level, to be accepted as an alternative to a qualification in English, where **BSL is the primary language of the Apprentice**.

Full details relating to BSL acceptance are contained in:

Section 5(f) of SASE for Intermediate Level Apprenticeships
Section 28(f) of SASE for Advanced Level Apprenticeships

Furthermore, the SASE modifications have further extended the list of qualifications that meet the minimum English and Maths requirements to allow for the acceptance of a range of UK-wide qualifications, as an alternative to qualifications gained in England.

Full details relating to the list of acceptable qualifications are contained in:

Sections 5(g-j) and 6(f-i) of SASE for Intermediate Level Apprenticeships
Sections 28(g-j) and 29(f-i) of SASE for Advanced Level Apprenticeships

The modifications include reference to the new numerical grades in the reformed GCSE system and the **minimum** grade requirements. A grade 4 (new grading) will be considered equivalent to a grade C (old grading). A grade 2 (new grading) will be considered equivalent to a Grade E (old grading).

Full details relating to the numerically graded GCSEs are contained in:

Sections 5 and 6 of SASE for Intermediate Level Apprenticeships
Sections 28 and 29 of SASE for Advanced Level Apprenticeships

Please note that some frameworks may have English and Maths grade/level requirements that are **above** the SASE **regular** minimum requirements. The exceptions relating to the use of British Sign Language or Entry Level 3 qualifications, detailed above, **do not apply** to **industry-specific** minimum entry requirements. Please check specific framework documents to ascertain where this is the case and/or check directly with the Issuing Authority responsible for the framework.

The updated version of SASE, and guidance documents, can be accessed here:

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/630068/Specification_of_Apprenticeship_Standards_for_England_.pdf

Electrotechnical (England)

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Framework summary

Electrotechnical

Advanced Level Apprenticeships in the Electrotechnical Industry

This framework includes information on Personal Learning and Thinking Skills

Pathways for this framework at level 3 include:

Pathway 1: Electrical Installation

Competence qualifications available to this pathway:

N/A

Knowledge qualifications available to this pathway:

N/A

Combined qualifications available to this pathway:

B1 - Level 3 NVQ Diploma in Installing Electrotechnical Systems and Equipment (Buildings, Structures and the Environment)

This pathway also contains information on:

- Employee rights and responsibilities
- Functional skills

Pathway 2: Electrical Maintenance

Competence qualifications available to this pathway:

N/A

Knowledge qualifications available to this pathway:

N/A

Combined qualifications available to this pathway:

B1 - Level 3 NVQ Diploma in Electrotechnical Services (Electrical Maintenance)

This pathway also contains information on:

- Employee rights and responsibilities
- Functional skills

Pathway 3: Highway Electrical Systems Service & Maintenance

Competence qualifications available to this pathway:

C1 - Level 3 NVQ Diploma in Servicing Highway Electrical Systems (QCF)

Knowledge qualifications available to this pathway:

K1 - Level 3 Certificate in Highway Electrical Work - Public Lighting (QCF)

K2 - Level 3 Certificate in Highway Electrical Work - Traffic Signals (QCF)

Combined qualifications available to this pathway:

N/A

This pathway also contains information on:

- Employee rights and responsibilities
- Functional skills

Pathway 4: Highway Electrical Systems Commissioning

Competence qualifications available to this pathway:

C1 - Level 3 NVQ Diploma in Servicing and Commissioning Highway Electrical Systems

Knowledge qualifications available to this pathway:

K1 - Level 3 Certificate in Highway Electrical Work (Public Lighting)

K2 - Level 3 Certificate in Highway Electrical Work (Traffic Signals)

Combined qualifications available to this pathway:

N/A

This pathway also contains information on:

- Employee rights and responsibilities
- Functional skills

Framework information

Information on the Issuing Authority for this framework:

Instructus

The Apprenticeship sector for occupations in air conditioning, building services engineering, business and administration, cleaning, customer service, digital/information technology, electro technical, electrical and electronic servicing, enterprise and business support, facilities management, heating and ventilating, housing, human resources and recruitment, industrial relations, leadership and management, marketing and sales (also includes contact centres and third sector), plumbing, property and refrigeration.

Issue number: 3	This framework includes: Level 3 This framework is for use in: England
Framework ID: FR00868	
Date this framework is to be reviewed by: 01/04/2016	

Short description

Advanced Level Apprenticeships in the Electrotechnical Industry are designed to reflect the industry's competence requirements. In this document are the following occupation framework pathways:

- Electrical Installation
- Electrical Maintenance
- Highway Electrical Systems Service & Maintenance
- Highway Electrical Systems Commissioning

Successful completion of these Advanced Level Apprenticeship frameworks reflect the ability to identify and use relevant understanding, methods and skills to complete tasks and address problems that, while well defined, have a measure of complexity. This includes taking responsibility for initiating and completing tasks and procedures, as well as exercising autonomy and judgement within parameters. It also reflects awareness of different

perspectives or approaches within an area of study or work.

These Level 3 frameworks can be completed within 42 months.

Job roles:

- Installation Electrician
- Maintenance Electrician
- Highway Electrical Systems Service & Maintenance Electrician
- Highway Electrical Systems Commissioning Electrician

Contact information

Proposer of this framework

N/A

Developer of this framework

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Issuing Authority's contact details

Issued by:
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Issuer email: apprenticeships@summitskills.org.uk

Revising a framework

Contact details

Who is making this revision: Trevor Hill
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Why this framework is being revised

Two further framework pathways for the Highway Electrical Systems sector have been added to this framework document.

Summary of changes made to this framework

Amendments have been made to the generic sections to reflect the addition of the two new frameworks as well as the addition of the two pathways.

Qualifications removed

N/A

Qualifications added

- Level 3 NVQ Diploma in Servicing and Commissioning Highway Electrical Systems (Competence element of the framework)
- Level 3 NVQ Diploma in Servicing Highway Electrical Systems (Competence element of the framework)
- Level 3 Certificate in Highway Electrical Work (Public Lighting) (Knowledge element of the framework)
- Level 3 Certificate in Highway Electrical Work (Traffic Signals) (Knowledge element of the framework)

Qualifications that have been extended

N/A

Purpose of this framework

Summary of the purpose of the framework

These occupation framework pathways are designed to provide individuals with the opportunity to develop competencies that are needed to carry out job roles and responsibilities associated with the installation and/or maintenance of electrotechnical systems and equipment in buildings, structures and the environment, including relevant:

- Environmental technologies
- Technological requirements and changes
- Statutory and non-statutory regulations and requirements
- Working practices in accordance with health and safety requirements
- Inspection, testing and commissioning procedures

The following job roles will be covered in these frameworks:

- Installation Electrician
- Maintenance Electrician
- Highway Electrical Systems Service & Maintenance Electrician
- Highway Electrical Systems Commissioning Electrician

Aims and objectives of this framework (England)

The aim of this framework is to ensure that the Advanced Level Apprenticeship programmes deliver:

- The skills and knowledge required by the industry to achieve competence
- Job-related skills that will be used in the working environment
- Transferable skills
- Career progression

Employers have endorsed this programme as it delivers qualified competent employees and improves productivity and retention.

Further information can be found at www.summitskills.org.uk

Entry conditions for this framework

A career in the Electrotechnical Industry will not only reward an apprentice's potential, but also offer opportunities to enhance their technical capability. The industry always needs individuals of appropriate ability, and in return offers a varied and rewarding career in a challenging working environment.

Although there are generally no nationally laid-down minimum entry or previous experience requirements to undertake the Advanced Level Apprenticeships in Electrical Installation, Electrical Maintenance, Highway Electrical Systems Service & Maintenance or Highway Electrical Systems Commissioning, the following selection criteria may be used as guidance.

The programme is likely to be suitable for individuals who:

- Have an aptitude for technical subjects and/or are practically minded
- Have an interest in technology
- Can demonstrate an ability to solve practical problems

Other selection criteria may include:

- Motivation to succeed
- Willingness to learn and apply that learning in the workplace/job role
- Enthusiasm and attitude to work
- Ability to demonstrate that they have the potential to achieve the qualifications which are part of the Advanced Level Apprenticeship programmes
- Ability to communicate effectively with a range of people
- Being numerate and literate
- Good colour vision to recognise colour coded wires and components
- Ability to work at heights or in confined spaces
- Willingness to work outside
- Willingness to work unsociable hours
- Willingness to undergo a Criminal Records Bureau (CRB) check when required

Examples of formal qualifications that could indicate that an applicant has the potential to progress into the Advanced Level Apprenticeships in Electrical Installation, Electrical Maintenance, Highway Electrical Systems Service & Maintenance or Highway Electrical Systems Commissioning are:

- Successful completion of an Intermediate Level Apprenticeship in the Building Services Engineering Sector
- GCSE grade A-C in each of the following:- a communication subject, maths and either a science or technical-based subject
- Level 2 GNVQs in relevant vocational/technical subjects
- A 14-19 Higher Diploma in either Construction and the Built Environment

- A Level 2 'Access to Building Services Engineering' qualification

No individual should be refused access to an initial assessment on the basis of educational qualifications alone. The ultimate responsibility for selection will rest with the individual employer.

Level 3

Title for this framework at level 3

Advanced Level Apprenticeships in the Electrotechnical Industry

Pathways for this framework at level 3

- Pathway 1: Electrical Installation
- Pathway 2: Electrical Maintenance
- Pathway 3: Highway Electrical Systems Service & Maintenance
- Pathway 4: Highway Electrical Systems Commissioning

Level 3, Pathway 1: Electrical Installation

Description of this pathway

Electrical Installation (installing, testing, inspecting and commissioning electrotechnical systems and equipment in buildings, structures and the environment) - 119 credits in total

Entry requirements for this pathway in addition to the framework entry requirements

No additional requirements

Job title(s)	Job role(s)
Installation Electrician	Completes the installation, inspection, testing and commissioning of electrical systems, devices, appliances and equipment in domestic, industrial, commercial, leisure and agricultural buildings, structures and environments

Qualifications

Competence qualifications available to this pathway

N/A

Knowledge qualifications available to this pathway

N/A

Combined qualifications available to this pathway

B1 - Level 3 NVQ Diploma in Installing Electrotechnical Systems and Equipment (Buildings, Structures and the Environment)					
No.	Ref no.	Awarding organisation	Credit value	Guided learning hours	UCAS points value
B1a	50116058	EAL	104	726	N/A
B1b	50122320	City & Guilds	104	726	N/A

Relationship between competence and knowledge qualifications

This framework requires the completion of either of the combined qualifications B1a or B1b identified in the combined qualifications section B1 above.

Qualification Title - Level 3 NVQ Diploma in Installing Electrotechnical Systems and Equipment (Buildings, Structures and the Environment) which has:

Knowledge Units

- Understanding Health and Safety legislation, practices and procedures - installing and maintaining electrotechnical systems and equipment H/602/2523 **Unit Credit Value 6**
- Understanding environmental legislation, working practices and the principles of environmental technology systems M/602/2525 **Unit Credit Value 4**
- Understanding the practices and procedures for overseeing and organising the work environment - electrical installation J/602/2532 **Unit Credit Value 6**
- Understanding the practices and procedures for the preparation and installation of wiring systems and electrotechnical equipment in buildings, structures and the environment T/602/2560 **Unit Credit Value 10**
- Understanding the principles of planning and selection for the installation of electrotechnical equipment and systems in buildings, structures and the environment A/602/2561 **Unit Credit Value 8**
- Understanding the principles, practices and legislation for the termination and connection of conductors, cables and cords in electrical systems J/602/2563 **Unit Credit Value 9**
- Understanding principles, practices and legislation for the inspection, testing, commissioning and certification of electrotechnical systems and equipment in buildings, structures and the environment D/602/2567 **Unit Credit Value 8**
- Understanding the principles, practices and legislation for diagnosing and correcting electrical faults in electrotechnical systems and equipment in buildings, structures and

the environment R/602/2579 **Unit Credit Value 6**

- Understanding the electrical principles associated with the design, building, installation and maintenance of electrical equipment and systems A/602/2589 **Unit Credit Value 12**

Knowledge Element = 69 Credits

Competence Units:

- Applying Health and Safety legislation and working practices - installing and maintaining electrotechnical systems and equipment R/602/2596 **Unit Credit Value 3**
- Applying environmental legislation, working practices and the principles of environmental technology systems H/602/2599 **Unit Credit Value 3**
- Overseeing and organising the work environment - electrical installation K/602/2605 **Unit Credit Value 3**
- Planning, preparing and installing wiring systems and associated equipment in buildings, structures and the environment R/602/2792 **Unit Credit Value 6**
- Terminating and connecting conductors, cables and flexible cords in electrical systems H/602/2828 **Unit Credit Value 4**
- Inspecting, testing, commissioning and certifying electrotechnical systems and equipment in buildings, structures and the environment K/602/2703 **Unit Credit Value 6**
- Diagnosing and correcting electrical faults in electrical systems and equipment in buildings, structures and the environment M/602/2704 **Unit Credit Value 6**
- Electrotechnical occupational competence R/602/2503 **Unit Credit Value 4**

Competence Element = 35 credits

Total Qualification = 104 credits

For further qualification details refer to: <http://register.ofqual.gov.uk/Qualification> and search for qualification or unit number.

Transferable skills (England)

Functional Skills / GCSE (with enhanced functional content) and Key Skills (England)

Apprentices must complete or have completed one of the English transferable skills qualifications and one of the Mathematical transferable skills qualifications listed below in order to successfully complete their Apprenticeship and this will carry the QCF five credit values. If they do not have these qualifications as part of their evidence an Apprenticeship certificate cannot be awarded.

English	Minimum level or grade	Credit value
Functional Skills qualification in English	2	5
GCSE qualification in English (with enhanced functional content)	C	5
Key Skills qualification in Communication achieved either before September 2013 as part of the Apprenticeship, or...*	2	5
GCSE Qualification in English*	C	N/A
A' Level or AS Level qualification in English Language*	E	N/A
A' Level or AS Level qualification in English Literature*	E	N/A
A' Level or AS Level qualification in English Language and Literature*	E	N/A
GCSE or O' Level qualification in English Language**	A	N/A
A' Level or AS Level qualification in English Language**	A	N/A
A' Level or AS Level qualification in English Literature**	A	N/A
A' Level or AS Level qualification in English Language and Literature**	A	N/A

* achieved before September 2012 and within the 5 years immediately prior to starting an Apprenticeship.

** achieved before September 2012, otherwise at any time prior to starting the Apprenticeship.

Mathematics	Minimum level or grade	Credit value
Functional Skills qualification in Mathematics	2	5
GCSE qualification (with enhanced functional content) in Mathematics	C	5
Key Skills qualification in Application of Number achieved either before September 2013 as part of the Apprenticeship, or...*	2	5
GCSE qualification in Mathematics*	C	N/A
A' level or AS Level qualification in Mathematics*	E	N/A
A' Level or AS Level qualification in Pure Mathematics*	E	N/A
A'Level or AS Level qualification in Further Mathematics*	E	N/A
GCSE or O'Level qualification in Mathematics**	A	N/A
A' Level or AS Level qualification in Mathematics**	A	N/A
A' Level or AS Level qualification in Pure Mathematics**	A	N/A
A' Level or AS Level qualification in Further Mathematics**	A	N/A

* achieved before September 2012 and within the 5 years immediately prior to starting an Apprenticeship.

** achieved before September 2012, otherwise at any time prior to starting the Apprenticeship.

ICT

Apprentices must complete or have completed one of the ICT transferable skills qualifications listed below in order to successfully complete their Apprenticeship and this will carry the QCF five credit values. If they do not have one of these qualifications as part of their evidence an Apprenticeship certificate cannot be awarded.

ICT	Minimum level or grade	Credit value
Functional Skills qualification in Information and Communications Technology (ICT)	2	5
GCSE qualification in ICT (with enhanced functional content)	C	5
Key Skills qualification in ICT achieved either before September 2013 as part of the Apprenticeship, or...*	2	5
GCSE qualification in ICT*	C	N/A
A' Level or AS Level qualification in ICT*	E	N/A
GCSE or O'Level qualification in ICT**	A	N/A
A' Level or AS Level qualification in ICT**	A	N/A

* achieved before September 2012 and within the 5 years immediately prior to starting an Apprenticeship.

** achieved before September 2012, otherwise at any time prior to starting the Apprenticeship.

Inclusion of Information and Communications Technology (ICT)

Non-applicable

Progression routes into and from this pathway

Progression routes into this pathway:

Applicants may come from a range of routes including:

- Work or work experience

- Training and/or experience which could include a portfolio showing what they have done
- Academic qualification(s) such as three GCSEs grades A-C in each of the following:- a communication subject, maths and either a science or technical-based subject
- Achievement of Key Skills or Functional Skills
- Level 2 GNVQs in relevant vocational/technical subjects
- A 14-19 Higher Diploma in either Construction and the Built Environment or Engineering
- A Level 2 'Access to Building Services Engineering' qualification

No individual should be refused access to an initial assessment on the basis of educational qualifications alone. The ultimate responsibility for selection will rest with the individual employer

Progression routes out of this pathway:

On successful completion of the Advanced Level Apprenticeship in Electrical Installation, an apprentice will have the skills, knowledge and qualifications to:

- Register on an appropriate Certification Scheme
- Progress to relevant Level 4/5 qualifications e.g. Building Services Engineering Technology & Project Management or Foundation Degree in Engineering
- Progress in their career with further training into job roles such as Technician, System Designer, Estimator, Project/Contracts Manager, Site/Workshop Supervisor/Manager, Chartered Engineer, Sales Engineer or Commercial Manager

Further career guidance can be found at: www.summitskills.org.uk/careers

UCAS points for this pathway: N/A

Employee rights and responsibilities

The Employee Rights and Responsibilities (ERR) elements identified below can be achieved through an induction programme, in combination with the City & Guilds (501/2232/0) or EAL (501/1605/8) Level 3 NVQ Diploma in Installing Electrotechnical Systems and Equipment (Buildings, Structures and the Environment) qualification into which they are integrated and signposted. The ERR elements will be evidenced by issuing a qualification achievement certificate plus a completed checklist, which must be signed by the assessor and the apprentice confirming all nine ERR elements have been achieved.

This checklist must accompany the claim for an Apprenticeship completion certificate and can be downloaded from:

www.summitskills.org.uk/Apprenticeships/Certification-and-Registration/219

The delivery and assessment of ERR must be designed so that the apprentice:

1. knows and understands the range of employer and employee statutory rights and responsibilities under Employment Law and that employment rights can be affected by other legislation as well. This should cover the apprentice's rights and responsibilities under the Disability Discrimination Act, other relevant equalities legislation and Health and Safety, together with the responsibilities and duties of employers;
2. knows and understands the procedures and documentation in their organisation which recognise and protect their relationship with their employer. Health and Safety, and Equality and Diversity training must be an integral part of the apprentice's learning programme;
3. knows and understands the range of sources of information and advice available to them on their employment rights and responsibilities. Details of Access to Work and Additional Learning Support must be included in the programme;
4. understands the role played by their occupation within their organisation and industry;
5. has an informed view of the types of career pathways that are open to them;
6. knows the types of representative bodies and understands their relevance to their industry and organisation, and their main roles and responsibilities;
7. knows where and how to get information and advice on their industry, occupation, training and career;
8. can describe and work within their organisation's principles and codes of practice;
9. recognises and can form a view on issues of public concern that affect their organisation and industry

Level 3, Pathway 2: Electrical Maintenance

Description of this pathway

Electrical Maintenance (The maintenance and servicing of electrotechnical systems and equipment) - 118 credits in total

Entry requirements for this pathway in addition to the framework entry requirements

Non - Applicable

Job title(s)	Job role(s)
Maintenance Electrician	Maintaining, servicing and repairing electrical and electronic systems in commercial, leisure, industrial and agricultural buildings, structures and the environment. This may include office blocks, leisure complexes, shopping centres or automated production systems.

Qualifications

Competence qualifications available to this pathway

N/A

Knowledge qualifications available to this pathway

N/A

Combined qualifications available to this pathway

B1 - Level 3 NVQ Diploma in Electrotechnical Services (Electrical Maintenance)					
No.	Ref no.	Awarding organisation	Credit value	Guided learning hours	UCAS points value
B1a	501/1624/1	City & Guilds	103	714	N/A
B1b	501/1604/6	EAL	103	714	N/A

Relationship between competence and knowledge qualifications

This framework requires the completion of either of the combined qualifications B1a or B1b identified in the combined qualifications section B1 above.

Qualification Title - Level 3 NVQ Diploma in Electrotechnical Services (Electrical Maintenance) which has:

Knowledge Units:

- Understanding Health and Safety legislation, practices and procedures - installing and maintaining electrotechnical systems and equipment H/602/2523 **Unit Credit Value 6**
- Understanding environmental legislation, working practices and the principles of environmental technology systems M/602/2525 **Unit Credit Value 4**
- Understanding the practices and procedures for overseeing and organising the work environment - electrical maintenance M/602/2542 **Unit Credit Value 6**
- Understanding the practices and procedures for planning and preparing to maintain electrotechnical systems and equipment J/602/2594 **Unit Credit Value 8**
- Understanding the practices and procedures for maintaining electrotechnical systems and equipment T/602/2591 **Unit Credit Value 8**
- Understanding the principles, practices and legislation for the termination and connection of conductors, cables and cords in electrical systems J/602/2563 **Unit Credit Value 9**
- Understanding principles, practices and legislation for the inspection, testing, commissioning and certification of electrotechnical systems and equipment in buildings, structures and the environment D/602/2567 **Unit Credit Value 8**
- Understanding the principles, practices and legislation for diagnosing and correcting electrical faults in electrotechnical systems and equipment in buildings, structures and the environment R/602/2579 **Unit Credit Value 6**
- Understanding the electrical principles associated with the design, building, installation

and maintenance of electrical equipment and systems A/602/2589 **Unit Credit Value 12**

Knowledge Element = 67 credits

Competence Units:

- Applying Health and Safety legislation and working practices - installing and maintaining electrotechnical systems and equipment R/602/2596 **Unit Credit Value 3**
- Applying environmental legislation, working practices and the principles of environmental technology systems H/602/2599 **Unit Credit Value 3**
- Overseeing and organising the work environment K/602/2605 **Unit Credit Value 3**
- Plan and prepare to maintain electrotechnical systems and equipment L/602/2709 **Unit Credit Value 3**
- Maintain electrotechnical systems and equipment A/602/2706 **Unit Credit Value 4**
- Terminating and connecting conductors, cables and flexible cords in electrical systems H/602/2828 **Unit Credit Value 4**
- Inspecting, testing, commissioning and certifying electrotechnical systems and equipment in buildings, structures and the environment K/602/2703 **Unit Credit Value 6**
- Diagnosing and correcting electrical faults in electrical systems and equipment in buildings, structures and the environment M/602/2704 **Unit Credit Value 6**
- Electrotechnical occupational competence R/602/2503 **Unit Credit Value 4**

Competence Element = 36 credits

Total Qualification = 103 credits

For further qualification details refer to: <http://register.ofqual.gov.uk/Qualification> and search for the qualification or unit number.

Transferable skills (England)

Functional Skills / GCSE (with enhanced functional content) and Key Skills (England)

Apprentices must complete or have completed one of the English transferable skills qualifications and one of the Mathematical transferable skills qualifications listed below in order to successfully complete their Apprenticeship and this will carry the QCF five credit values. If they do not have these qualifications as part of their evidence an Apprenticeship certificate cannot be awarded.

English	Minimum level or grade	Credit value
Functional Skills qualification in English	2	5
GCSE qualification in English (with enhanced functional content)	C	5
Key Skills qualification in Communication achieved either before September 2013 as part of the Apprenticeship, or...*	2	5
GCSE Qualification in English*	C	N/A
A' Level or AS Level qualification in English Language*	E	N/A
A' Level or AS Level qualification in English Literature*	E	N/A
A' Level or AS Level qualification in English Language and Literature*	E	N/A
GCSE or O' Level qualification in English Language**	A	N/A
A' Level or AS Level qualification in English Language**	A	N/A
A' Level or AS Level qualification in English Literature**	A	N/A
A' Level or AS Level qualification in English Language and Literature**	A	N/A

* achieved before September 2012 and within the 5 years immediately prior to starting an Apprenticeship.

** achieved before September 2012, otherwise at any time prior to starting the Apprenticeship.

Mathematics	Minimum level or grade	Credit value
Functional Skills qualification in Mathematics	2	5
GCSE qualification (with enhanced functional content) in Mathematics	C	5
Key Skills qualification in Application of Number achieved either before September 2013 as part of the Apprenticeship, or...*	2	5
GCSE qualification in Mathematics*	C	N/A
A' level or AS Level qualification in Mathematics*	E	N/A
A' Level or AS Level qualification in Pure Mathematics*	E	N/A
A'Level or AS Level qualification in Further Mathematics*	E	N/A
GCSE or O'Level qualification in Mathematics**	A	N/A
A' Level or AS Level qualification in Mathematics**	A	N/A
A' Level or AS Level qualification in Pure Mathematics**	A	N/A
A' Level or AS Level qualification in Further Mathematics**	A	N/A

* achieved before September 2012 and within the 5 years immediately prior to starting an Apprenticeship.

** achieved before September 2012, otherwise at any time prior to starting the Apprenticeship.

ICT

Apprentices must complete or have completed one of the ICT transferable skills qualifications listed below in order to successfully complete their Apprenticeship and this will carry the QCF five credit values. If they do not have one of these qualifications as part of their evidence an Apprenticeship certificate cannot be awarded.

ICT	Minimum level or grade	Credit value
Functional Skills qualification in Information and Communications Technology (ICT)	2	5
GCSE qualification in ICT (with enhanced functional content)	C	5
Key Skills qualification in ICT achieved either before September 2013 as part of the Apprenticeship, or...*	2	5
GCSE qualification in ICT*	C	N/A
A' Level or AS Level qualification in ICT*	E	N/A
GCSE or O'Level qualification in ICT**	A	N/A
A' Level or AS Level qualification in ICT**	A	N/A

* achieved before September 2012 and within the 5 years immediately prior to starting an Apprenticeship.

** achieved before September 2012, otherwise at any time prior to starting the Apprenticeship.

Inclusion of Information and Communications Technology (ICT)

Non-applicable

Progression routes into and from this pathway

Progression routes into this pathway:

Applicants may come from a range of routes including:

- Work or work experience

- Training and/or experience which could include a portfolio showing what they have done
- Academic qualification(s) such as three GCSEs grades A-C in each of the following:- a communication subject, maths and either a science or technical-based subject
- Achievement of Key Skills or Functional Skills
- Level 2 GNVQs in relevant vocational/technical subjects
- A 14-19 Higher Diploma in either Construction and the Built Environment or Engineering
- A Level 2 'Access to Building Services Engineering' qualification

No individual should be refused access to an initial assessment on the basis of educational qualifications alone. The ultimate responsibility for selection will rest with the individual employer

Progression routes out of this pathway:

On successful completion of the Advanced Level Apprenticeship in Electrical Maintenance an apprentice will have the skills, knowledge and qualifications to:

- Register on an appropriate Certification Scheme
- Progress to relevant Level 4/5 qualifications e.g. Building Services Engineering Technology & Project Management or Foundation Degree in Engineering
- Progress in their career with further training into job roles such as Technician, Designer Estimator, Project Manager, Site/Workshop Supervisor/Manager, Chartered Engineer, Sales Engineer or Service Manager

Further career guidance can be found at: www.summitskills.org.uk/careers

UCAS points for this pathway: N/A

Employee rights and responsibilities

The Employee Rights and Responsibilities (ERR) elements identified below are likely to be achieved through an induction programme, in combination with the City & Guilds (501/1624/1) or EAL(501/1604/6) Level 3 NVQ Diploma in Electrotechnical Services (Electrical Maintenance) qualification into which they are integrated and signposted. The ERR elements will be evidenced by issuing a qualification achievement certificate plus a completed checklist which must be signed by the assessor and the apprentice confirming all nine ERR elements have been achieved.

This checklist must accompany the claim for an Apprenticeship completion certificate and can be downloaded from:

www.summitskills.org.uk/Apprenticeships/Certification-and-Registration/219

The delivery and assessment of ERR must be designed so that the apprentice:

1. knows and understands the range of employer and employee statutory rights and responsibilities under Employment Law and that employment rights can be affected by other legislation as well. This should cover the apprentice's rights and responsibilities under the Disability Discrimination Act, other relevant equalities legislation and Health and Safety, together with the responsibilities and duties of employers;
2. knows and understands the procedures and documentation in their organisation which recognise and protect their relationship with their employer. Health and Safety and Equality and Diversity training must be an integral part of the apprentice's learning programme;
3. knows and understands the range of sources of information and advice available to them on their employment rights and responsibilities. Details of Access to Work and Additional Learning Support must be included in the programme;
4. understands the role played by their occupation within their organisation and industry;
5. has an informed view of the types of career pathways that are open to them;
6. knows the types of representative bodies and understands their relevance to their industry and organisation, and their main roles and responsibilities;
7. knows where and how to get information and advice on their industry, occupation, training and career;
8. can describe and work within their organisation's principles and codes of practice;
9. recognises and can form a view on issues of public concern that affect their organisation and industry

Level 3, Pathway 3: Highway Electrical Systems Service & Maintenance

Description of this pathway

Highway Electrical Systems Service & Maintenance 65-73 credits in total depending on which qualifications chosen

Entry requirements for this pathway in addition to the framework entry requirements

Although not a requirement it would be an advantage to have completed a Level 2 NVQ Diploma in Highway Electrical Systems

Job title(s)	Job role(s)
Highway Electrical Systems Service & Maintenance Electrician	Servicing, maintaining and repairing electrical and electronic systems on highways.

Qualifications

Competence qualifications available to this pathway

C1 - Level 3 NVQ Diploma in Servicing Highway Electrical Systems (QCF)					
No.	Ref no.	Awarding organisation	Credit value	Guided learning hours	UCAS points value
C1a	501/1578/9	Lantra	37	179-191	N/A

Knowledge qualifications available to this pathway

K1 - Level 3 Certificate in Highway Electrical Work - Public Lighting (QCF)					
No.	Ref no.	Awarding organisation	Credit value	Guided learning hours	UCAS points value
K1a	500/6254/2	Lantra	13	110	N/A

K2 - Level 3 Certificate in Highway Electrical Work - Traffic Signals (QCF)					
No.	Ref no.	Awarding organisation	Credit value	Guided learning hours	UCAS points value
K2a	500/6252/9	Lantra	21	186	N/A

Combined qualifications available to this pathway

N/A

Relationship between competence and knowledge qualifications

This framework requires the completion of the competence qualification C1a identified in the competence qualifications section above **plus** either of the knowledge qualifications K1a or K2a.

The breakdown of these qualifications is as follows:

Qualification Title - **Level 3 NVQ Diploma in Servicing Highway Electrical Systems (501/1578/9)** in which a candidate must achieve a minimum of 37 credits - 31 credits must come from mandatory group A and a minimum of 6 credits must come from the options units in group B.

Mandatory Group A

Knowledge Units:

- Apply Health and Safety and Environmental Legislation and Working Practices F/601/9709 **Unit Credit Value 15**
- Maintain Effective Working Relationships H/602/0299 **Unit Credit Value 4**

Knowledge Elements = 19 credits

Competence Units:

- Plan and Prepare for the Installation and Maintenance of Highway Electrical Systems and Equipment Y/602/0302 **Unit Credit Value 6**
- Inspect and Test Highway Electrical Systems, Equipment and Components J/601/9713 **Unit Credit Value 6**

Competence Elements = 12 credits

Mandatory Group A = 31 credits

Group B Options units

Competence Units:

- Identify and Correct Faults in Highway Electrical Systems, Equipment and Components F/601/9712 **Unit Credit Value 6**
- Install and Connect Highway Electrical Systems, Equipment and Components A/602/0292 **Unit Credit Value 6**

- Maintain Highway Electrical Systems, Equipment and Components L/602/0300 **Unit Credit Value 6**
- Commission Highway Electrical Systems, Equipment and Components A/601/9711 **Unit Credit Value 6**

Competence Elements = 24 credits

**Qualification Title - Level 3 Certificate in Highway Electrical Work (Public Lighting)
(500/6254/2)**

Knowledge Units:

- Advanced Electrical Theory and Practice for the Highway Electrical Sector T/502/4508 **Unit Credit Value 3**
- Electrical Inspection and Testing A/502/4509 **Unit Credit Value 3**
- Management and Supervision of Highway Electrical Works M/502/4510 **Unit Credit Value 3**
- Public Lighting Advanced Routine Maintenance T/502/4511 **Unit Credit Value 2**
- Public Lighting Advanced Reactive Maintenance A/502/4512 **Unit Credit Value 2**

Knowledge Elements = 13 credits

Or

**Qualification Title - Level 3 Certificate in Highway Electrical Work (Traffic Signals)
(500/6252/9)**

Knowledge Units:

- Advanced Electrical Theory and Practice for the Highway Electrical Sector T/502/4508 **Unit Credit Value 3**
- Electrical Inspection and Testing A/502/4509 **Unit Credit Value 3**
- Management and Supervision of Highway Electrical Works M/502/4510 **Unit Credit Value 3**
- Traffic Signals Transmission Systems and Ancillary Control F/502/4561 **Unit Credit Value 3**
- Traffic Control Advanced Principles J/502/4562 **Unit Credit Value 3**
- Traffic Signal Inspection and Commissioning Procedures L/502/4563 **Unit Credit Value 3**
- Traffic Signals Specialist Techniques - Microprocessor Optimised Vehicle Actuation R/502/4564 **Unit Credit Value 3**

Knowledge Elements = 21 credits

For further qualification details refer to: <http://register.ofqual.gov.uk/Qualification> and search for the qualification or unit number.

Transferable skills (England)

Functional Skills / GCSE (with enhanced functional content) and Key Skills (England)

Apprentices must complete or have completed one of the English transferable skills qualifications and one of the Mathematical transferable skills qualifications listed below in order to successfully complete their Apprenticeship and this will carry the QCF five credit values. If they do not have these qualifications as part of their evidence an Apprenticeship certificate cannot be awarded.

English	Minimum level or grade	Credit value
Functional Skills qualification in English	2	5
GCSE qualification in English (with enhanced functional content)	C	5
Key Skills qualification in Communication achieved either before September 2013 as part of the Apprenticeship, or...*	2	5
GCSE Qualification in English*	C	N/A
A' Level or AS Level qualification in English Language*	E	N/A
A' Level or AS Level qualification in English Literature*	E	N/A
A' Level or AS Level qualification in English Language and Literature*	E	N/A
GCSE or O' Level qualification in English Language**	A	N/A
A' Level or AS Level qualification in English Language**	A	N/A
A' Level or AS Level qualification in English Literature**	A	N/A
A' Level or AS Level qualification in English Language and Literature**	A	N/A

* achieved before September 2012 and within the 5 years immediately prior to starting an Apprenticeship.

** achieved before September 2012, otherwise at any time prior to starting the Apprenticeship.

Mathematics	Minimum level or grade	Credit value
Functional Skills qualification in Mathematics	2	5
GCSE qualification (with enhanced functional content) in Mathematics	C	5
Key Skills qualification in Application of Number achieved either before September 2013 as part of the Apprenticeship, or...*	2	5
GCSE qualification in Mathematics*	C	N/A
A' level or AS Level qualification in Mathematics*	E	N/A
A' Level or AS Level qualification in Pure Mathematics*	E	N/A
A'Level or AS Level qualification in Further Mathematics*	E	N/A
GCSE or O'Level qualification in Mathematics**	A	N/A
A' Level or AS Level qualification in Mathematics**	A	N/A
A' Level or AS Level qualification in Pure Mathematics**	A	N/A
A' Level or AS Level qualification in Further Mathematics**	A	N/A

* achieved before September 2012 and within the 5 years immediately prior to starting an Apprenticeship.

** achieved before September 2012, otherwise at any time prior to starting the Apprenticeship.

ICT

Apprentices must complete or have completed one of the ICT transferable skills qualifications listed below in order to successfully complete their Apprenticeship and this will carry the QCF five credit values. If they do not have one of these qualifications as part of their evidence an Apprenticeship certificate cannot be awarded.

ICT	Minimum level or grade	Credit value
Functional Skills qualification in Information and Communications Technology (ICT)	2	5
GCSE qualification in ICT (with enhanced functional content)	C	5
Key Skills qualification in ICT achieved either before September 2013 as part of the Apprenticeship, or...*	2	5
GCSE qualification in ICT*	C	N/A
A' Level or AS Level qualification in ICT*	E	N/A
GCSE or O'Level qualification in ICT**	A	N/A
A' Level or AS Level qualification in ICT**	A	N/A

* achieved before September 2012 and within the 5 years immediately prior to starting an Apprenticeship.

** achieved before September 2012, otherwise at any time prior to starting the Apprenticeship.

Inclusion of Information and Communications Technology (ICT)

Non-applicable

Progression routes into and from this pathway

Progression routes into this pathway:

Applicants may come from a range of routes including:

- Work or work experience

- Training and/or experience which could include a portfolio showing what they have done
- Academic qualification(s) such as three GCSEs grades A-C in each of the following:- a communication subject, maths and either a science or technical-based subject
- Achievement of Key Skills or Functional Skills
- Level 2 GNVQs in relevant vocational/technical subjects
- A 14-19 Higher Diploma in either Construction and the Built Environment or Engineering
- A Level 2 'Access to Building Services Engineering' qualification

No individual should be refused access to an initial assessment on the basis of educational qualifications alone. The ultimate responsibility for selection will rest with the individual

Progression routes out of this pathway:

On successful completion of the Advanced Level Apprenticeship in Highway Electrical Systems Service & Maintenance an apprentice will have the skills, knowledge and qualifications to:

- Register on an appropriate Certification Scheme
- Progress to relevant Level 4/5 qualifications e.g. Building Services Engineering Technology & Project Management or Foundation Degree in Engineering
- Progress in their career with further training into job roles such as Technician, Designer Estimator, Project Manager, Site/Workshop Supervisor/Manager, Chartered Engineer, Sales Engineer or Service Manager

Further career guidance can be found at: www.summitskills.org.uk/careers

UCAS points for this pathway: N/A

Employee rights and responsibilities

The Employee Rights and Responsibilities (ERR) elements identified below are likely to be achieved through an induction programme, in combination with either the Lantra (501/1578/9) Level 3 NVQ Diploma in Servicing Highway Electrical Systems qualification into which they are integrated and signposted. The ERR elements will be evidenced by issuing a qualification achievement certificate plus a completed checklist which must be signed by the assessor and the apprentice confirming all nine ERR elements have been achieved.

This checklist must accompany the claim for an Apprenticeship completion certificate and can be downloaded from:

www.summitskills.org.uk/Apprenticeships/Certification-and-Registration/219

The delivery and assessment of ERR must be designed so that the apprentice:

1. knows and understands the range of employer and employee statutory rights and responsibilities under Employment Law and that employment rights can be affected by other legislation as well. This should cover the apprentice's rights and responsibilities under the Disability Discrimination Act, other relevant equalities legislation and Health and Safety, together with the responsibilities and duties of employers;
2. knows and understands the procedures and documentation in their organisation which recognise and protect their relationship with their employer. Health and Safety, and Equality and Diversity training must be an integral part of the apprentice's learning programme;
3. knows and understands the range of sources of information and advice available to them on their employment rights and responsibilities. Details of Access to Work and Additional Learning Support must be included in the programme;
4. understands the role played by their occupation within their organisation and industry;
5. has an informed view of the types of career pathways that are open to them;
6. knows the types of representative bodies and understands their relevance to their industry and organisation, and their main roles and responsibilities;
7. knows where and how to get information and advice on their industry, occupation, training and career;
8. can describe and work within their organisation's principles and codes of practice;
9. recognises and can form a view on issues of public concern that affect their organisation and industry

Level 3, Pathway 4: Highway Electrical Systems Commissioning

Description of this pathway

Highway Electrical Systems Commissioning – 83 - 91 credits in total depending on which qualifications chosen

Entry requirements for this pathway in addition to the framework entry requirements

Although not a requirement it would be an advantage to have completed a Level 2 NVQ Diploma in Highway Electrical Systems

Job title(s)	Job role(s)
Highway Electrical Systems Commissioning Electrician	Commissioning electrical and electronic systems on highways.

Qualifications

Competence qualifications available to this pathway

C1 - Level 3 NVQ Diploma in Servicing and Commissioning Highway Electrical Systems					
No.	Ref no.	Awarding organisation	Credit value	Guided learning hours	UCAS points value
C1a	501/1579/0	Lantra	55	285	N/A

Knowledge qualifications available to this pathway

K1 - Level 3 Certificate in Highway Electrical Work (Public Lighting)					
No.	Ref no.	Awarding organisation	Credit value	Guided learning hours	UCAS points value
K1a	500/6254/2	Lantra	13	110	N/A

K2 - Level 3 Certificate in Highway Electrical Work (Traffic Signals)					
No.	Ref no.	Awarding organisation	Credit value	Guided learning hours	UCAS points value
K2a	500/6252/9	Lantra	21	186	N/A

Combined qualifications available to this pathway

N/A

Relationship between competence and knowledge qualifications

This framework requires the completion of the competence qualifications C1a identified in the competence qualifications section above **plus** either of the knowledge qualifications K1a or K2a.

The breakdown of these qualifications is as follows:

Qualification Title - **Level 3 NVQ Diploma in Servicing and Commissioning Highway Electrical Systems (501/1579/0)** which has:

Knowledge Units:

- Apply Health and Safety and Environmental Legislation and Working Practices F/601/9709 **Unit Credit Value 15**
- Maintain Effective Working Relationships H/602/0299 **Unit Credit Value 4**
- Plan and Prepare for the Installation and Maintenance of Highway Electrical Systems and Equipment Y/602/0302 **Unit Credit Value 6**
- Maintain Highway Electrical Systems, Equipment and Components L/602/0300 **Unit Credit Value 6**
- Commission Highway Electrical Systems, Equipment and Components A/601/9711 **Unit Credit Value 6**

Knowledge Element = 37 credits

Competence Units:

- Install and Connect Highway Electrical Systems, Equipment and Components A/602/0292 **Unit Credit Value 6**
- Inspect and Test Highway Electrical Systems, Equipment and Components J/601/9713 **Unit Credit Value 6**
- Identify and Correct Faults in Highway Electrical Systems, Equipment and Components F/601/9712 **Unit Credit Value 6**

Competence Element = 18 credits

Total Qualification = 55 credits

Qualification Title - **Level 3 Certificate in Highway Electrical Work (Public Lighting) (500/6254/2)**

Knowledge Units:

- Advanced Electrical Theory and Practice for the Highway Electrical Sector T/502/4508
Unit Credit Value 3
- Electrical Inspection and Testing A/502/4509 **Unit Credit Value 3**
- Management and Supervision of Highway Electrical Works M/502/4510 **Unit Credit Value 3**
- Public Lighting Advanced Routine Maintenance T/502/4511 **Unit Credit Value 2**
- Public Lighting Advanced Reactive Maintenance A/502/4512 **Unit Credit Value 2**

Knowledge Elements = 13 credits

Or

Qualification Title - Level 3 Certificate in Highway Electrical Work (Traffic Signals) (500/6252/9)

Knowledge Units:

- Advanced Electrical Theory and Practice for the Highway Electrical Sector T/502/4508
Unit Credit Value 3
- Electrical Inspection and Testing A/502/4509 **Unit Credit Value 3**
- Management and Supervision of Highway Electrical Works M/502/4510 **Unit Credit Value 3**
- Traffic Signals Transmission Systems and Ancillary Control F/502/4561 **Unit Credit Value 3**
- Traffic Control Advanced Principles J/502/4562 **Unit Credit Value 3**
- Traffic Signal Inspection and Commissioning Procedures L/502/4563 **Unit Credit Value 3**
- Traffic Signals Specialist Techniques - Microprocessor Optimised Vehicle Actuation
R/502/4564 **Unit Credit Value 3**

Knowledge Elements = 21 credits

For further qualification details refer to: <http://register.ofqual.gov.uk/Qualification> and search for the qualification or unit number.

Transferable skills (England)

Functional Skills / GCSE (with enhanced functional content) and Key Skills (England)

Apprentices must complete or have completed one of the English transferable skills qualifications and one of the Mathematical transferable skills qualifications listed below in order to successfully complete their Apprenticeship and this will carry the QCF five credit values. If they do not have these qualifications as part of their evidence an Apprenticeship certificate cannot be awarded.

English	Minimum level or grade	Credit value
Functional Skills qualification in English	2	5
GCSE qualification in English (with enhanced functional content)	C	5
Key Skills qualification in Communication achieved either before September 2013 as part of the Apprenticeship, or...*	2	5
GCSE Qualification in English*	C	N/A
A' Level or AS Level qualification in English Language*	E	N/A
A' Level or AS Level qualification in English Literature*	E	N/A
A' Level or AS Level qualification in English Language and Literature*	E	N/A
GCSE or O' Level qualification in English Language**	A	N/A
A' Level or AS Level qualification in English Language**	A	N/A
A' Level or AS Level qualification in English Literature**	A	N/A
A' Level or AS Level qualification in English Language and Literature**	A	N/A

* achieved before September 2012 and within the 5 years immediately prior to starting an Apprenticeship.

** achieved before September 2012, otherwise at any time prior to starting the Apprenticeship.

Mathematics	Minimum level or grade	Credit value
Functional Skills qualification in Mathematics	2	5
GCSE qualification (with enhanced functional content) in Mathematics	C	5
Key Skills qualification in Application of Number achieved either before September 2013 as part of the Apprenticeship, or...*	2	5
GCSE qualification in Mathematics*	C	N/A
A' level or AS Level qualification in Mathematics*	E	N/A
A' Level or AS Level qualification in Pure Mathematics*	E	N/A
A'Level or AS Level qualification in Further Mathematics*	E	N/A
GCSE or O'Level qualification in Mathematics**	A	N/A
A' Level or AS Level qualification in Mathematics**	A	N/A
A' Level or AS Level qualification in Pure Mathematics**	A	N/A
A' Level or AS Level qualification in Further Mathematics**	A	N/A

* achieved before September 2012 and within the 5 years immediately prior to starting an Apprenticeship.

** achieved before September 2012, otherwise at any time prior to starting the Apprenticeship.

ICT

Apprentices must complete or have completed one of the ICT transferable skills qualifications listed below in order to successfully complete their Apprenticeship and this will carry the QCF five credit values. If they do not have one of these qualifications as part of their evidence an Apprenticeship certificate cannot be awarded.

ICT	Minimum level or grade	Credit value
Functional Skills qualification in Information and Communications Technology (ICT)	2	5
GCSE qualification in ICT (with enhanced functional content)	C	5
Key Skills qualification in ICT achieved either before September 2013 as part of the Apprenticeship, or...*	2	5
GCSE qualification in ICT*	C	N/A
A' Level or AS Level qualification in ICT*	E	N/A
GCSE or O'Level qualification in ICT**	A	N/A
A' Level or AS Level qualification in ICT**	A	N/A

* achieved before September 2012 and within the 5 years immediately prior to starting an Apprenticeship.

** achieved before September 2012, otherwise at any time prior to starting the Apprenticeship.

Inclusion of Information and Communications Technology (ICT)

Non-applicable

Progression routes into and from this pathway

Progression routes into this pathway:

Applicants may come from a range of routes including:

- Work or work experience

- Training and/or experience which could include a portfolio showing what they have done
- Academic qualification(s) such as three GCSEs grades A-C in each of the following:- a communication subject, maths and either a science or technical-based subject
- Achievement of Key Skills or Functional Skills
- Level 2 GNVQs in relevant vocational/technical subjects
- A 14-19 Higher Diploma in either Construction and the Built Environment or Engineering
- A Level 2 'Access to Building Services Engineering' qualification

No individual should be refused access to an initial assessment on the basis of educational qualifications alone. The ultimate responsibility for selection will rest with the individual

Progression routes out of this pathway:

On successful completion of the Advanced Level Apprenticeship in Highway Electrical Systems Commissioning an apprentice will have the skills, knowledge and qualifications to:

- Register on an appropriate Certification Scheme
- Progress to relevant Level 4/5 qualifications e.g. Building Services Engineering Technology & Project Management or Foundation Degree in Engineering
- Progress in their career with further training into job roles such as Technician, Designer Estimator, Project Manager, Site/Workshop Supervisor/Manager, Chartered Engineer, Sales Engineer or Service Manager

Further career guidance can be found at: www.summitskills.org.uk/careers

UCAS points for this pathway: N/A

Employee rights and responsibilities

The Employee Rights and Responsibilities (ERR) elements identified below are likely to be achieved through an induction programme, in combination with the **Lantra (501/1579/0) Level 3 NVQ Diploma in Servicing and Commissioning Highway Electrical Systems** qualification into which they are integrated and signposted. The ERR elements will be evidenced by issuing a qualification achievement certificate plus a completed checklist which must be signed by the assessor and the apprentice confirming all nine ERR elements have been achieved.

This checklist must accompany the claim for an Apprenticeship completion certificate and can be downloaded from:

www.summitskills.org.uk/Apprenticeships/Certification-and-Registration/219

The delivery and assessment of ERR must be designed so that the apprentice:

1. knows and understands the range of employer and employee statutory rights and responsibilities under Employment Law and that employment rights can be affected by other legislation as well. This should cover the apprentice's rights and responsibilities under the Disability Discrimination Act, other relevant equalities legislation and Health and Safety, together with the responsibilities and duties of employers;
2. knows and understands the procedures and documentation in their organisation which recognise and protect their relationship with their employer. Health and Safety, and Equality and Diversity training must be an integral part of the apprentice's learning programme;
3. knows and understands the range of sources of information and advice available to them on their employment rights and responsibilities. Details of Access to Work and Additional Learning Support must be included in the programme;
4. understands the role played by their occupation within their organisation and industry;
5. has an informed view of the types of career pathways that are open to them;
6. knows the types of representative bodies and understands their relevance to their industry and organisation, and their main roles and responsibilities;
7. knows where and how to get information and advice on their industry, occupation, training and career;
8. can describe and work within their organisation's principles and codes of practice;
9. recognises and can form a view on issues of public concern that affect their organisation and industry

The remaining sections apply to all levels and pathways within this framework.

How equality and diversity will be met

The nature of the work means that the Electrotechnical Industry is not a traditional career choice for women, but women do qualify and work successfully in the industry and this is encouraged. We are continuing to work with the UK Resource Centre for Women in Science, Engineering and Technology and Platform 51 (formerly the YWCA) to promote the opportunities for women working in the building services engineering sector.

SummitSkills will have overall responsibility for the development and review of the framework and for monitoring equality of opportunity, primarily by the analysis of the National Apprenticeship Service data.

There should be open recruitment of apprentices who meet the selection criteria, regardless of gender, ethnic origin, religion/belief, sexual orientation or disability .

All partners involved in the delivery of the apprenticeship and employers must be committed to a policy of equal opportunities and must have a formal equal opportunities policy and procedures in place.

Employers/providers must be able to demonstrate that there are no overt or covert discriminatory practices in selection and employment. All promotional, selection and training activities must comply with relevant legislation, such as the Equality Act 2010.

Providers will monitor equality of opportunity practice and procedures within their own organisation and take positive action when necessary. It is also recommended that employers/providers conduct an exit interview if the apprentice leaves the programme before completion.

On and off the job guided learning (England)

Total GLH for each pathway

Overview of Electrical Installation

Qualification Total - 726 hrs (Knowledge elements 646hrs + Competence elements 80hrs)

Functional Skills (FS) - 135 hrs (notional value of 45 hrs per FS x 3, which can be offset if previously completed)

Mentoring - 322 hrs (based on 46 wks x 2 hrs per full year over 3.5 years)

Total minimum GLH for this framework is 1183 hrs

Overview of Electrical Maintenance

Qualification Total - 714 hrs (Knowledge elements 626hrs + Competence elements 88hrs)

Functional Skills (FS) - 135 hrs (notional value of 45hrs per FS x 3, which can be offset if previously completed)

Mentoring - 322 hrs (based on 46 wks x 2 hrs per full year over 3.5 years)

Minimum total GLH for this framework is 1171 hrs

Overview of Highway Electrical Systems Servicing and Maintenance

1/ Qualification Total – Level 3 NVQ Diploma in Servicing Highway Electrical Systems (501/1578/9) - 179-191 hrs depending on units chosen (Knowledge elements 95 hrs + Competence elements 84-96 hrs depending on options chosen)

Plus either

2/ Qualification Total – Level 3 Certificate in Highway Electrical Work (Public Lighting) (500/6254/2) - 110 hrs (Knowledge elements 110 hrs)

or

3/ Qualification Total – Level 3 Certificate in Highway Electrical Work (Traffic Signals) (500/6252/9) - 186 hrs (Knowledge elements 186 hrs)

Minimum Qualifications Total GLH - 289 hrs for qualification 1 & 2

Maximum Qualifications Total GLH - 377 hrs for qualification 1 & 3

Functional Skills (FS) - 135 hrs (notional value of 45hrs per FS x 3, which can be offset if previously completed)

Mentoring - 644 hrs (based on 46 wks x 4 hrs per full year over 3.5 years)

Total GLH for this framework is 1068-1156 hrs depending on options chosen

Overview of Highway Electrical Systems Commissioning

1/ Qualification Total – Level 3 NVQ Diploma in Servicing and Commissioning Highway Electrical Systems (501/1579/0) - 285 hrs (Knowledge elements 186 hrs + Competence elements 99 hrs)

Plus either

2/ Qualification Total – Level 3 Certificate in Highway Electrical Work (Public Lighting) (500/6254/2) - 110 hrs (Knowledge elements 110 hrs)

or

3/ Qualification Total – Level 3 Certificate in Highway Electrical Work (Traffic Signals) (500/6252/9) - 186 hrs (Knowledge elements 186 hrs)

Minimum Qualifications Total GLH - 395 hrs for qualification 1 & 2

Maximum Qualification Total GLH - 471 hrs for qualification 1 & 3

Functional Skills (FS) - 135 hrs (notional value of 45hrs per FS x 3, which can be offset if previously completed)

Mentoring - 644 hrs (based on 46 wks x 4 hrs per full year over 3.5 years)

Total GLH for this framework is 1174-1250 hrs depending on options chosen

Minimum off-the-job guided learning hours

Electrical Installation

Minimum total of off-the-job GLH is 861 hrs over 42 months

- Yr 1 - 246 GLH
- Yr 2 - 246 GLH
- Yr 3 - 246 GLH
- Yr 4 (6 months) - 123 GLH

Electrical Maintenance

Minimum total off-the-job GLH is 849hrs over 42 months

- Yr 1 - 243 GLH

- Yr 2 - 243 GLH
- Yr 3 - 243 GLH
- Yr 4 - (6 months) 120 GLH

Highway Electrical Systems Service & Maintenance

Minimum total off-the-job GLH is 424-512 hrs over 42 months

- Yr 1 - 130 GLH
- Yr 2 - 130 GLH
- Yr 3 - 130 GLH
- Yr 4 - (6 months) 34 -122 GLH

Highway Electrical Systems Commissioning

Minimum total off-the-job GLH is 530-606 hrs over 42 months

- Yr 1 - 170 GLH
- Yr 2 - 170 GLH
- Yr 3 - 170 GLH
- Yr 4 - (6 months) 20-96 GLH

How this requirement will be met

Guided Learning Hours (GLH) will be achieved through clear and specific outcomes which contribute directly to the successful completion of the framework, and these may include accredited and non-accredited elements of the framework.

GLH will be delivered through one or more of the following methods: individual and group teaching; e-learning; distance learning; feedback and assessment; guided study. All GLH delivery must be completed while undertaking *apprenticeship training* and will take place during contracted working hours.

This will be evidenced by training provider attendance statistics and assessment reports.

Minimum on-the-job guided learning hours

Electrical Installation

Minimum total on-the-job GLH is 322 hrs over 42 months

- Yr 1 - 92 GLH
- Yr 2 - 92 GLH
- Yr 3 - 92 GLH
- Yr 4 (6 months) - 46 GLH

Electrical Maintenance

Minimum total on-the-job GLH is 322 hrs over 42 months

- Yr 1 - 92 GLH
- Yr 2 - 92 GLH
- Yr 3 - 92 GLH
- Yr 4 - (6 months) - 46 GLH

Highway Electrical Systems Service & Maintenance

Minimum total on-the-job GLH is 644 hrs over 42 months

- Yr 1 - 184 GLH
- Yr 2 - 184 GLH
- Yr 3 - 184 GLH
- Yr 4 - (6 months) - 92 GLH

Highway Electrical Systems Commissioning

Minimum total on-the-job GLH is 644 hrs over 42 months

- Yr 1 - 184 GLH
- Yr 2 - 184 GLH
- Yr 3 - 184 GLH
- Yr 4 - (6 months) - 92 GLH

These are the minimum number of GLH that should be allocated for the apprentice to gather evidence in accordance with the requirements of the integrated qualification and mentoring.

How this requirement will be met

Guided Learning Hours (GLH) will be achieved through clear and specific outcomes which contribute directly to the successful achievement of the framework and these may include accredited and non-accredited elements of the framework.

GLH will be delivered through one or more of the following methods: coaching; mentoring; feedback and assessment; collaborative/networked learning with peers. All GLH delivery must be completed while undertaking *apprenticeship training* and will take place during contracted working hours.

This will be evidenced by an apprentice's portfolio, employer dialogue, qualification assessment records and reports.

Personal learning and thinking skills assessment and recognition (England)

Summary of Personal Learning and Thinking Skills

There are four occupation pathways in this framework document with each pathway having a different competence-based qualification:

Electrical Installation - Level 3 NVQ Diploma in Installing Electrotechnical Systems and Equipment (Buildings, Structures and the Environment)

Electrical Maintenance - Level 3 NVQ Diploma in Electrotechnical Services (Electrical Maintenance)

Highway Electrical Systems Services & Maintenance Level 3 NVQ Diploma in Servicing Highway Electrical Systems

Highway Electrical Systems Commissioning Level 3 NVQ Diploma in Servicing and Commissioning Highway Electrical Systems

The six Personal, Learning and Thinking Skills will be achieved and demonstrated as detailed in the following sections while completing the qualifications above:

Formal recognition of PLTS achievement will be provided in the form of a certificate upon framework completion.

Creative thinking

Creative thinking will be demonstrated and delivered at a minimum level within the common Electrical Installation & Electrical Maintenance qualification units referenced below:

- Overseeing and organising the work environment (K/602/2605)
- Diagnosing and correcting electrical faults in electrical systems and equipment in building, structures and the environment (M/602/2704)
- Understanding the electrical principles associated with the design, building, installation and maintenance of electrical equipment and systems (A/602/2589)

Creative thinking will be demonstrated and delivered at a minimum level within the common Highway Electrical Systems qualification units referenced below:

- Plan and Prepare for the Installation and Maintenance of Highway Electrical Systems and

Equipment (Y/602/0302)

- Maintain Effective Working Relationships (H/602/0299)
- Inspect and Test Highway Electrical Systems, Equipment and Components (J/601/9713)

Assessment and recognition will take place during the delivery and be evidenced at certification by the achievement of the qualification.

Independent enquiry

Independent enquiry will be demonstrated and delivered at a minimum level within the common Electrical Installation & Electrical Maintenance qualification units referenced below:

- Understanding environmental legislation, working practices and the principles of environmental technology systems (M/602/2525)
- Understanding the electrical principles associated with the design, building, installation and maintenance of electrical equipment and systems (A/602/2589)
- Diagnosing and correcting electrical faults in electrical systems and equipment in buildings and structures (M/602/2704)

Independent enquiry will be demonstrated and delivered at a minimum level within the common Highway Electrical Systems qualification units referenced below:

- Apply Health & Safety and Environmental Legislation and Working Practices (F/601/9709)
- Plan and Prepare for the Installation and Maintenance of Highway Electrical Systems and Equipment (Y/602/0302)
- Inspect and Test Highway Electrical Systems, Equipment and Components (J/601/9713)

Assessment and recognition will take place during the delivery and be evidenced at certification by the achievement of the qualification.

Reflective learning

Reflective learning will be demonstrated and delivered at a minimum level within the common Electrical Installation & Electrical Maintenance qualifications units referenced below:

- Diagnosing and correcting electrical faults in electrical systems and equipment in buildings, structures and the environment (M/602/2704)
- Understanding the principles, practices and legislation for the Inspection, testing, commissioning and certification of electrical systems and equipment in buildings, structures and the environment (D/602/2567)
- Understanding the principles, practices and legislation for diagnosing and correcting electrical faults in electrical systems and equipment in buildings and structures

(R/602/2579)

Reflective learning will be demonstrated and delivered at a minimum level within the common Highway Electrical Systems qualification units referenced below:

- Maintain Effective Working Relationships (H/602/0299)
- Inspect and Test Highway Electrical Systems, Equipment and Components (J/601/9713)
- Plan and Prepare for the Installation and Maintenance of Highway Electrical Systems and Equipment (Y/602/0302)

Assessment and recognition will take place during the delivery and be evidenced at certification by the achievement of the qualification.

Team working

Team working will be demonstrated and delivered at a minimum level within the common Electrical Installation & Electrical Maintenance qualification units referenced below:

- Applying Health and Safety legislation and working practices (R/602/2596)
- Applying environmental legislation working practices and principles (H/602/2599)
- Understanding the electrical principles associated with the design, building, installation and maintenance of electrical equipment and systems (A/602/2589)

Team working will be demonstrated and delivered at a minimum level within the common Highway Electrical Systems qualification units referenced below:

- Apply Health & Safety and Environmental Legislation and Working Practices (F/601/9709)
- Maintain Effective Working Relationships (H/602/0299)
- Plan and Prepare for the Installation and Maintenance of Highway Electrical Systems and Equipment (Y/602/0302)

Assessment and recognition will take place during the delivery and be evidenced at certification by the achievement of the qualification.

Self management

Self management will be demonstrated and delivered at a minimum level within the common Electrical Installation & Electrical Maintenance qualification units referenced below:

- Applying Health and Safety legislation and working practices (Installing and maintaining electrotechnical systems and equipment) (R/602/2596)
- Overseeing and organising the work environment (Electrotechnical) (K602/2605)

- Electrotechnical occupational competence (R/602/2503)

Self management will be demonstrated and delivered at a minimum level within the common Highway Electrical Systems qualification units referenced below:

- Plan and Prepare for the Installation and Maintenance of Highway Electrical Systems and Equipment (Y/602/0302)
- Apply Health & Safety and Environmental Legislation and Working Practices (F601/9709)
- Maintain Effective Working Relationships (H/602/0299)

Assessment and recognition will take place during the delivery and be evidenced at certification by the achievement of the qualification

Effective participation

Effective participation will be demonstrated and delivered at a minimum level within the common Electrical Installation & Electrical Maintenance qualification units referenced below:

- Applying Health and Safety legislation and working practices (Installing and maintaining electrotechnical systems and equipment) (R/602/2596)
- Applying environmental legislation, working practices and the principles of environmental technology systems (H/602/2599)
- Understanding the electrical principles associated with the design, building, installation and maintenance of electrical equipment and systems (A/602/2589)

Effective participation will be demonstrated and delivered at a minimum level within the common Highway Electrical Systems qualification units referenced below:

- Apply Health & Safety and Environmental Legislation and Working Practices (F601/9709)
- Inspect and Test Highway Electrical Systems, Equipment and Components (J601/9713)
- Plan and Prepare for the Installation and Maintenance of Highway Electrical Systems and Equipment (Y/602/0302)

Assessment and recognition will take place during the delivery and be evidenced at certification by the achievement of the qualification.

Additional employer requirements

Although not a requirement for issuing an “Apprenticeship Completion Certificate”, employers in the building services engineering sector **encourage** organisations that are delivering a learning and assessment programme for these Advanced Level Apprenticeship Frameworks to integrate the **Level 3 Award in the Fundamental Principles and Requirements of Environmental Technology Systems** (City & Guilds 600/0701/1 or EAL 600/0665/1) into their delivery models.

Highway Electrical System employers also **encourage** the delivery of the following optional units during the completion of the Highway Electrical System frameworks:

- Carry out emergency work on highway electrical systems T/601/9710 **Unit Credit Value 5 GLH 20**
- Supervise the work of others F/602/0326 **Unit Credit Value 5 GLH 25**

It should be noted that the delivery of this qualification will **not** attract funding.

apprenticeship
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