LANTRA AWARDS

Level 2 and 3 Certificates in Highway Electrical Work

Qualification Specification

Version 3

Notice to users

The contents of this document have been carefully researched and are believed to be correct; however, due to the rapid nature of changes to industry, technology and working practices etc. Lantra cannot guarantee the accuracy or completeness of any interpretation or statement made in this document and does not accept liability for such statements or for any incorrect information provided.

This document has been produced to accompany the specified Lantra Awards' course. It is written to give broad guidance and support to users.

It is recommended that users ensure that they remain up to date with changes in industry and working practices by attending regular training or undertaking further CPD.

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Lantra, Lantra House, Stoneleigh Park, Nr Coventry, Warwickshire CV8 2LG
Registered no: 2823181 • Charity no: 1022991 • Scottish charity no: SC039039

Web: www.lantra.co.uk
Tel: 02476 69 69 96
Fax: 02476 69 67 32
E-mail: sales@lantra.co.uk
Write: Lantra, Lantra House, Stoneleigh Park, Nr Coventry, Warwickshire CV8 2LG

Qualification Specification

Lantra Awards Level 2 and Level 3 Certificates in Highway Electrical Work

Contents

Acknowledgements

Lantra gratefully acknowledges the help and support of the following organisations and individuals in supplying information and illustration materials:

- The Highway Electrical Association (HEA).

1 Why have these Qualifications been Developed?

This Qualification Specification applies to the following qualifications:

- Lantra Awards Level 2 Certificate in Highway Electrical Work
- Lantra Awards Level 3 Certificate in Highway Electrical Work.

These qualifications have been developed to provide operatives entering work in the highway electrical sector, with the essential knowledge and skills required to support achievement and progression within their career.

These qualifications have been developed by the Highway Electrical Skills Academy (HESA) and are designed to meet the requirements of the National Highway Sector Scheme (NHSS) 8.

These qualifications offer Learners in the highway electrical sector, a nationally recognised qualification route that will enable progression within the apprenticeship framework and Lantra Awards highway electrical National Vocational Qualifications (NVQs).

These qualifications include pathways that reflect the sub-sectors of the highway electrical sector, including Cameras, Communications and Variable Messaging Signs (VMS), Public Lighting, Slot cutting and Traffic Signals.

Learners must be assessed against all the learning outcomes and assessment criteria set out in the qualifications.

This qualification specification provides information for approved Lantra Provider employees, Assessors, Internal Quality Assurers (IQAs) and Provider Managers involved in the planning, delivery and assessment of the qualifications listed above.

2 Who are these Qualifications for?

These qualifications will encourage Learners to develop their knowledge, understanding and skills and are aimed at those who are entering employment for the first time; for those who are already working in highway electrical who want to develop their knowledge; and for those who wish to progress to further. The qualifications will enhance the ability of personnel to work safely, effectively and efficiently in the workplace, reducing unnecessary risks to themselves and others.

They provide the opportunity to achieve nationally recognised qualifications that reflect the national standards for the type(s) of role(s) they perform. The qualifications will be suitable for those new to the industry and those who have begun to establish themselves in a role within the highway electrical environment.

The qualifications are included as part of the highway electrical apprenticeship framework(s). There is an expectation that by completing the Level 2 qualification(s) Learners will go on to complete the relevant NVQ at Level 2 before taking the Level 3 qualifications within the apprenticeship framework(s).

These qualifications are available for Learners aged 16+.

2.1 Prerequisites

Entry for these qualifications is available to any individual who is capable of achieving the required standard. Provider staff should understand the demands of these qualifications and match Learners based on their individual capabilities and future progression requirements.

These qualifications have been developed to promote equal opportunities by eliminating any avoidable barriers which have the potential to restrict access or progression.

There are no formal requirements for entry to these qualifications.

3 What do these Qualifications Cover?

Learners undertaking these qualifications will be able to demonstrate their skills and knowledge to be able to work safely and effectively in the highway electrical sector.

The qualifications aim to assess the Learner's knowledge and understanding of:

- Health, safety and environmental implementation for highway electrical works
- Safe working practices within the highway electrical sector
- Basic highway electrical theory and practice
- Sub-sector awareness (sub-sector specific)
- Installation techniques (sub-sector specific)
- Routine maintenance techniques (sub-sector specific)
- Reactive maintenance techniques
- Specialist techniques (sub-sector specific).

Following regulatory requirements for qualifications to have a distinct purpose, this qualification is recognised and approved by the Office of Qualifications and Examinations Regulation (Ofqual) for:

- D. Confirm occupational competence and/or 'licence to practice'

Sub Purpose:

- D1. Confirm competence in an occupational role to the standards required.

These qualifications will encourage Learners to develop their knowledge, understanding and skills and are aimed at those who are entering employment for the first time, for those who are already working in highway electrical who want to develop their knowledge and for those who wish to progress to further.

3.1 Progression Routes

These qualifications form part of a wider Lantra Awards offer. The table below indicates where there are opportunities for Learners to progress via accredited training and, where applicable, regulated qualifications.

Qualifications	
Lantra Awards Level 2 NVQ Certificate in Highway Electrical Systems	These qualifications give Learners the opportunity to develop their skills and demonstrate competence across the full range of activities that highway electrical systems operatives need to be able to do as part of their everyday work.
Lantra Awards Level 2 NVQ Diploma in Highway Electrical Systems	
Lantra Awards Level 3 NVQ Diploma in Servicing and Commissioning Highway Electrical Systems	
Lantra Awards Level 3 NVQ Diploma in Servicing Highway Electrical Systems	

4 Qualification Overview

			Where to look for further details
Qualification title	Lantra Awards Level 2 Certificate in Highway Electrical Work		Ofqual's Register of Regulatory Qualifications register.ofqual.gov.uk
Qualification number	603/2166/0		
Qualification aim	These qualifications have been developed to provide operatives entering work in the highway electrical sector, with the essential knowledge and skills required to support achievement and progression within their career.		
Qualification purpose	These qualifications will encourage Learners to develop their knowledge, understanding and skills and are aimed at those who are entering employment for the first time, for those who are already working in highway electrical who want to develop their knowledge and for those who wish to progress to further.		
Qualification start date	1 Sep 2017		
Level	2		
Credits	16		
GLH	125		
TQT	160		
Unit numbers and titles Regulator reference (Internal reference)	**Core mandatory**		Pages 15-65
	T/616/0518 (HE2/1V)	Health, Safety & Environmental Implementation for Highway Electrical Work	
	A/616/0519 (HE2/2V)	Safe Working Practices within the Highway Electrical Sector	
	M/616/0520 (HE2/3V)	Basic Electrical Theory and Practice in the Highway Electrical Sector	
	Pathway A – Cameras		
	Y/616/0527 (HE2/15V)	Highway Cameras - Installation Techniques	
	J/616/0605 (HE2/16V)	Highway Cameras - Routine Maintenance Techniques	

	L/616/0606 (HE2/17V)	Highway Cameras/Detector - Reactive Maintenance Techniques	
	Pathway B – Communications/VMS		
	H/616/0613 (HE2/19V)	Communications/VMS - Fundamental Principles	
	D/616/0531 (HE2/20V)	Communications/VMS - Installation of Non-Infrastructure Equipment	
	M/616/0534 (HE2/21V)	Communications/VMS - Reactive Maintenance Techniques	
	Pathway C - Public Lighting		
	T/616/0535 (HE2/4V)	Public Lighting Awareness	
	F/616/0537 (HE2/5V)	Public Lighting - Installation Techniques	
	J/616/0619 (HE2/6V)	Public Lighting - Routine Maintenance Techniques	
	A/616/0620 (HE2/7V)	Public Lighting - Reactive Maintenance Techniques	
	F/616/0621 (HE2/8V)	Public Lighting - Specific Techniques - Surface Protection	
	J/616/0622 (HE2/9V)	Public Lighting - Specific Techniques	
	Pathway D – Slot Cutting		
	L/616/0623 (HE2/22V)	Slot Cutting - Cutting to Specification	
	R/616/0624 (HE2/23V)	Slot Cutting - Cable Laying and Sealing	
	Y/616/0625 (HE2/24V)	Slot Cutting - Testing and Repair of Cables	
	H/616/0627 (HE2/25V)	Slot Cutting - Access to Cabinets Through Ducts	
	Pathway E - Traffic Signals		
	M/616/0629 (HE2/10V)	Traffic and Pedestrian Signal Awareness	
	H/616/0630 (HE2/11V)	Traffic Signals - Installation Techniques	

<table>
<tr><td></td><td>M/616/0632 (HE2/12V)</td><td>Traffic Signals - Routine Maintenance Techniques</td><td></td></tr>
<tr><td></td><td>A/616/0634 (HE2/13V)</td><td>Traffic Signals - Reactive Maintenance Techniques</td><td></td></tr>
<tr><td></td><td>F/616/0635 (HE2/14V)</td><td>Traffic Signals - Specific Techniques</td><td></td></tr>
<tr><td>Qualification structure</td><td colspan="3">This qualification comprises:

3 mandatory units
21 optional units.

To achieve this qualification a Learner must achieve three core mandatory units and all units within their chosen pathway (see above for pathways).</td><td></td></tr>
<tr><td rowspan="2">Age group</td><td>Pre-16</td><td>16–18</td><td>18+</td><td>19+</td><td rowspan="2"></td></tr>
<tr><td>☒</td><td>☑</td><td>☑</td><td>☑</td></tr>
<tr><td>Entry requirements</td><td colspan="3">Learners must be able to read and interpret information provided in English.</td><td></td></tr>
<tr><td>Prerequisites</td><td colspan="3">There are no formal prerequisites for this qualification.</td><td></td></tr>
<tr><td>Recognition of prior learning</td><td colspan="3">Recognised Prior Learning (RPL) can be provided to evidence completion (in full or in part) in accordance with the Highway Electrical Training Specification. RPL must be agreed in line with the Provider’s internal quality-assurance procedures i.e. a copy of a certificate from the awarding organisation.</td><td></td></tr>
<tr><td>Assessment methods</td><td colspan="3">Underpinning knowledge will be assessed by multiple-choice assessment or a short answer written assessment paper.

For practical elements, Learners will be assessed by a holistic practical assessment identified within each outcome. In addition, those Learners who will be assessed against an CBQ/NVQ will be expected to demonstrate the application of the under-pinning knowledge through the relevant CBQ/NVQ unit(s).</td><td></td></tr>
</table>

Assessment model	This qualification is internally assessed with external verification. This means that Providers will appoint Trainers, Assessors and an Internal Quality Assurer (IQA) to provide internal quality assurance prior to External Quality Assurer (EQA) sign off.	
Grading	Pass/Fail	
Is there a skills card available?	No	Guidance Handbook for Providers
Fees	Registration and certification fees can be found in the Product Directory. Prices are subject to review on an annual basis so please contact the sales team if you do not have an up to date copy (sales@lantra.co.uk).	Product Directory; sales team
Related documents	An Assessment Strategy is available for Providers and Assessors which can be found on Quartzweb.	www.lantra.co.uk
How do I register Learners?	Via Quartzweb ordering.lantra.co.uk/Login.aspx	Quartzweb User Guide

			Where to look for further details
Qualification title	Lantra Awards Level 3 Certificate in Highway Electrical Work		Ofqual's Register of Regulatory Qualifications register.ofqual.gov.uk
Qualification number	603/2168/4		
Qualification aim	These qualifications have been developed to provide operatives entering work in the highway electrical sector, with the essential knowledge and skills required to support achievement and progression within their career.		
Qualification purpose	These qualifications will encourage Learners to develop their knowledge, understanding and skills and are aimed at those who are entering employment for the first time, for those who are already working in highway electrical who want to develop their knowledge and for those who wish to progress to further.		
Qualification start date	1 Sep 2017		
Level	3		
Credits	13		
GLH	119		
TQT	130		
Unit numbers and titles Regulator reference (Internal reference)	**Core mandatory**		Pages 66 - 87
	H/616/0563 (HE3/1V)	Advanced Electrical Theory and Practice within the Highway Electrical Sector	
	K/616/0564 (HE3/2V)	Electrical Inspection and Testing (Pathway Specific)	
	M/616/0565 (HE3/3V)	Coordinate the Work of Others in Highway Electrical Work	
	Pathway A – Cameras		
	A/616/0567 (HE3/10V)	Highway Cameras - Specialist Techniques - Transmission Systems and Techniques Fundamentals	

	F/616/0568 (HE3/11V)	Highway Cameras - Specialist Techniques - Commissioning Procedures for Cameras	
	J/616/0569 (HE3/12V)	Highway Cameras - Specialist Techniques - Ancillary Equipment Skills	
	Pathway B – Communications/VMS		
	F/616/0571 (HE3/13V)	Communications - Specialist Techniques - Maintenance of Specialist Communications Equipment	
	J/616/0572 (HE3/14V)	VMS - Specialist Techniques - Maintenance of Specialist Variable Message Sign Equipment	
	L/616/0573 (HE3/15V)	VMS - Specialist Techniques - Commissioning Procedures	
	Pathway C - Public Lighting		
	R/616/0574 (HE3/4V)	Public Lighting - Specialist Routine Maintenance	
	Y/616/0575 (HE3/5V)	Public Lighting - Specialist Reactive Maintenance	
	Pathway E - Traffic Signals		
	D/616/0576 (HE3/6V)	Traffic Signals - Specialist Techniques - Advance Principles	
	H/616/0577 (HE3/7V)	Traffic Signals - Specialist Techniques - Inspection and Commissioning	
	K/616/0578 (HE3/8V)	Traffic Signals - Specialist Techniques - Data Transmission and Ancillary Control	
	M/616/0579 (HE3/9V)	Traffic Signals - Specialist Techniques – Microprocessor Optimised Vehicle Actuation (MOVA)	

<table>
<tr><td>Qualification structure</td><td colspan="4">This qualification comprises:

3 mandatory units
12 optional units.

To achieve this qualification a Learner must achieve three core mandatory units and all units within their chosen pathway (see above for pathways).</td><td></td></tr>
<tr><td rowspan="2">Age group</td><td>Pre-16</td><td>16–18</td><td>18+</td><td>19+</td><td rowspan="2"></td></tr>
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Related documents	An Assessment Strategy is available for Providers and Assessors which can be found on Quartzweb.	www.lantra.co.uk
How do I register Learners?	Via Quartzweb ordering.lantra.co.uk/Login.aspx	Quartzweb User Guide

5 Content of Qualifications

5.1 Lantra Awards Level 2 Certificate in Highway Electrical Work

To achieve this qualification a Learner must achieve 3 core mandatory units and all of the units within their chosen pathway.

Unit titles	M/O/MO	GLH	Credits
Core mandatory (all)			
Health, Safety & Environmental Implementation for Highway Electrical Work	M	25	3
Safe Working Practices within the Highway Electrical Sector	M	62	6
Basic Electrical Theory and Practice in the Highway Electrical Sector	M	29	3
Pathway A – Cameras (all)			
Highway Cameras - Installation Techniques	MO	18	2
Highway Cameras - Routine Maintenance Techniques	MO	4	1
Highway Cameras/Detector - Reactive Maintenance Techniques	MO	21	2
Pathway B – Communications/VMS (all)			
Communications/VMS - Fundamental Principles	MO	27	3
Communications/VMS - Installation of Non-Infrastructure Equipment	MO	28	3
Communications/VMS - Reactive Maintenance Techniques	MO	27	3
Pathway C – Public Lighting (all)			
Public Lighting Awareness	MO	6	1
Public Lighting - Installation Techniques	MO	70	7
Public Lighting - Routine Maintenance Techniques	MO	14	1
Public Lighting - Reactive Maintenance Techniques	MO	20	2
Public Lighting - Specific Techniques - Surface Protection	MO	14	1
Public Lighting - Specific Techniques	MO	19	2
Pathway D – Slot Cutting (all)			
Slot Cutting - Cutting to Specification	MO	7	1
Slot Cutting - Cable Laying and Sealing	MO	7	1
Slot Cutting - Testing and Repair of Cables	MO	7	1
Slot Cutting - Access to Cabinets Through Ducts	MO	7	1
Pathway E – Traffic Signals (all)			
Traffic and Pedestrian Signal Awareness	MO	18	2
Traffic Signals - Installation Techniques	MO	46	5
Traffic Signals - Routine Maintenance Techniques	MO	17	2
Traffic Signals - Reactive Maintenance Techniques	MO	67	7
Traffic Signals - Specific Techniques	MO	8	1

Unit title	Health, Safety & Environmental Implementation for Highway Electrical Work
Internal unit reference	HE2/1V
Regulator unit reference number	T/616/0518
Unit level	2
Unit credit value	3

Learning outcome The Learner will:	Assessment criteria The Learner can:
1. Understand individual and organisational responsibilities and safe working practices in relation to HASAWA	1.1. Identify the need for a health and safety policy.
	1.2. Outline the legal obligations under current legislation.
	1.3. Identify the health and safety responsibilities of the organisation and the individual.
	1.4. Explain the process for the reporting of accidents and the consequent investigation procedure.
	1.5. Describe the importance of risk assessment.
	1.6. State when and why personal protective equipment (PPE) might be required.
	1.7. State the need for safety, welfare and access arrangements on-site.
	1.8. Explain the importance of housekeeping procedures, including waste disposal and environmental issues.
2. Understand safe working practices in respect of hazardous substances	2.1. Identify substances likely to cause harm.
	2.2. Outline COSHH assessment instructions.
	2.3. Identify and wear PPE correctly.
	2.4. Identify actions prior to using chemicals.

Learning outcome The Learner will:	Assessment criteria The Learner can:
	2.5. Identify the measures required to ensure the safety of employees and the general public.
	2.6. Explain what actions should be taken on contact with chemicals/hazardous substances.
3. Understand the causes, results and prevention of electrical injuries	3.1. Identify injuries caused by electricity.
	3.2. Identify the difference between direct and indirect contact.
	3.3. Describe the effects of electric shock to the human body.
	3.4. Identify measures to prevent electrical injuries.
	3.5. Identify the reasons for inspection and testing of fixed and portable equipment.
4. Understand the causes, results and prevention of manual handling injuries	4.1. Identify the potential risks and hazards involved in the handling of materials.
	4.2. Identify and wear PPE correctly.
	4.3. Assess items to be handled and identify the associated risks involved.
	4.4. Use correct lifting techniques.
	4.5. Describe alternative handling methods.
5. Understand responsibilities and actions arising from health and safety legislation and guidance (other than Electricity at Work Regulations 1989 (EAW))	5.1. State the hierarchy of documents in relation to health and safety legislation.
	5.2. Identify the key legislation and guidance in relation to highway electrical works.
	5.3. Identify where risk assessment standards are located.
	5.4. State the actions to be taken in response to defined signs under the Health and Safety (Safety Signs and Signals) Regulations.

Learning outcome The Learner will:	Assessment criteria The Learner can:
6. Know appropriate actions to take in emergency situations	6.1. Identify the location of the first-aid box.
	6.2. Identify first-aid information, including the list of trained first aiders.
	6.3. Identify activities likely to require emergency first aid.
	6.4. State the constituents of the emergency first-aid primary survey.
	6.5. State the correct action to take in the case of LV and HV electrical injury.
	6.6. Identify how to deal with potential pollution to the environment from a spill.
	6.7. Identify when and how to obtain assistance.
7. Understand the responsibilities and appropriate working practices for compliance with environmental requirements	7.1. Identify the organisational environmental policy statement.
	7.2. Identify when activities or omissions may have an adverse impact upon the environment.
	7.3. Identify how to dispose of materials in an environmentally friendly manner.

The taught content for this unit is taken from the following HESA courses:

- 101
- 102
- 103
- 104
- 105
- 106.

Refer to the HESA/NHSS 8 - Highway Electrical Registration Scheme (HERS) Highway Electrical Training Specification for details.

Unit title	Safe Working Practices within the Highway Electrical Sector
Internal unit reference	HE2/2V
Regulator unit reference number	A/616/0519
Unit level	2
Unit credit value	6

Learning outcome The Learner will:	Assessment criteria The Learner can:
1. Understand the principles of hazard identification and risk assessment	1.1. Complete a hazard identification list.
	1.2. Identify how to locate organisation risk assessments.
	1.3. Review and complete a risk assessment.
	1.4. Record risk assessments.
	1.5. Identify measures to reduce risk.
	1.6. Identify when and how to report hazards and risks.
	1.7. Identify the factors that will ensure that the site is safe for work to proceed or finish.
2. Understand the hazards that may occur as a result of using tools	2.1. Identify the hazards and risks of using hand tools.
	2.2. Identify the hazards and risks of using power tools.
	2.3. Describe how to use cutting and stripping tools safely and correctly.
	2.4. Describe how to use drivers and wrenches safely and correctly.
	2.5. Describe how to use excavation tools safely and correctly.
	2.6. Describe how to use power tools safely and correctly.
	2.7. Identify and correctly use insulated tools.
	2.8. Describe how to maintain hand and power tools.

Learning outcome The Learner will:	Assessment criteria The Learner can:
	2.9. Identify precautions to be taken with fuel-driven tools.
3. Know how to load, transport and remove materials from vehicles	3.1. Identify the hazards and risks associated with loading and unloading materials.
	3.2. Describe how to load vehicles using safe working practices.
	3.3. Describe how to secure and store equipment using safe working practices.
	3.4. Describe how to unload equipment using safe working practices.
	3.5. Identify correct methods for transporting materials on-site.
	3.6. Describe how to assess loads for transportation.
	3.7. Identify when and how to seek assistance.
4. Know how to identify and avoid danger from services on-site	4.1. Identify hazards from services on-site.
	4.2. Describe the safe system of work.
	4.3. Use underground services drawings correctly.
	4.4. Describe what to look for when visually assessing the site to identify the location of possible services.
	4.5. Identify the need for use of a cable avoidance tool and generator.
	4.6. Use the cable avoidance tool correctly.
	4.7. Use the generator and ancillary equipment correctly.
5. Know how to identify equipment for working at height and work safely at height	5.1. Identify the correct method for gaining access.
	5.2. Identify and use correct PPE including work belts.

Learning outcome The Learner will:	Assessment criteria The Learner can:
	5.3. Complete appropriate hazard and risk assessment documentation.
	5.4. Unload, carry and set up steps or ladders.
	5.5. Use steps or ladders Remove, carry and load steps or ladders.
6. Know how to identify, inspect and use relevant Personal Protective Equipment (PPE)/Respiratory Protective Equipment (RPE)	6.1. Describe why PPE/RPE might be needed.
	6.2. Identify appropriate PPE/RPE for tasks which may be being undertaken.
	6.3. Identify PPE/RPE appropriate to the environment.
	6.4. Describe the legislative and organisational procedures for the use and maintenance of PPE/RPE.
7. Know how to identify and use equipment for safety at street and road works	7.1. Identify relevant codes of practice related to traffic management.
	7.2. Identify the equipment required in temporary traffic management.
	7.3. Complete the traffic management elements of risk assessment.
	7.4. State the requirements for signing and guarding of road works for short-duration, moving and minor works.
	7.5. Demonstrate how to set out appropriate traffic management or signing and guarding for short-duration work.
	7.6. Describe how to deal with pedestrians.
	7.7. Identify the correct sequence of actions for installing, maintaining and removing positive traffic control systems.
8. Know how to identify and respond to hazards and risks on-site	8.1. Identify site hazards and risks.
	8.2. Define a site working area.
	8.3. Describe how to assess ground works for a site.

Learning outcome The Learner will:	Assessment criteria The Learner can:
	8.4. Describe how to correctly prepare and store equipment on a site.
	8.5. Identify how to ensure that a site is safe for work to proceed or finish.
	8.6. Describe how to operate in a safe and professional manner.

The taught content for this unit is taken from the following HESA courses:

- 201
- 202
- 204
- 204.1
- 205
- 207
- 208 or M208
- 209
- 302.1
- 302.2.

Refer to the HESA/NHSS 8 - Highway Electrical Registration Scheme (HERS) Highway Electrical Training Specification for details.

Unit title	Basic Electrical Theory and Practice in the Highway Electrical Sector
Internal unit reference	HE2/3V
Regulator unit reference number	M/616/0520
Unit level	2
Unit credit value	3

Learning outcome The Learner will:	Assessment criteria The Learner can:
1. Understand electrical terminology and electrical and electronic items used in highway electrical works	Identify a circuit diagram and component parts.
	Identify the hazards and risks associated with highway electrical works.
	Define the terms: current, voltage, resistance and power.
	Use Ohm's law and power calculations.
	Identify different electrical components and their functions.
	State typical earthing arrangements and bonding.
	Read electrical circuit diagrams.
2. Know how to comply with the Electricity at Work Regulations and guidance	Identify organisational procedures relating to the reporting of health and safety issues.
	State the scope of the Electricity at Work Regulations.
	State the requirements of the regulations in relation to live working.
	State the regulations associated with the safety, design and location of electrical equipment.
	Identify the procedures necessary for the installation, maintenance and working practices related to electrical installations.
3. Know the procedures associated with work on or near DNO or iDNO equipment	Identify the associated hazards and risks of working on or near DNO or iDNO equipment.

Learning outcome The Learner will:	Assessment criteria The Learner can:
	State the appropriate PPE for working on or near DNO equipment.
	Identify acceptable clearances between lighting columns and overhead lines.
	Identify different methods of providing a mains supply.
	Describe responsibilities in relation to commissioning, maintenance, repair and emergency work.
	Describe the method of work when working in the vicinity of live conductors.
	Carry out a polarity check.
	Correctly remove and replace a cut-out fuse carrier for isolation purposes and fuse replacement.
4. Know how to carry out a safe isolation	Carry out isolation on a single-phase circuit.
	State the various methods for the isolation of electrical circuits in differing highway electrical equipment.
	Test to determine if a supply is present.
	Describe how to replace or reinstate protective devices in order to restore supply.
	State the limitations of the work that can be undertaken by the operative.
	Explain what action to take in the event that supply cannot be restored.

The taught content for this unit is taken from the following HESA courses:

- 210
- 214
- 401.1
- 402.

Refer to the HESA/NHSS 8 - Highway Electrical Registration Scheme (HERS) Highway Electrical Training Specification for details.

Unit title	Highway Cameras - Installation Techniques
Internal unit reference	HE2/15V
Regulator unit reference number	Y/616/0527
Unit level	2
Unit credit value	2

Learning outcome The Learner will:	Assessment criteria The Learner can:
1. Describe and demonstrate how to ensure cable installations are installed to specification in accordance with manufacturing/customer requirements and/or organisation and legislative policies	1.1. Identify hazards and risks.
	1.2. Identify cable types.
	1.3. State necessary precautions before, during and after installing cables.
	1.4. Describe how to install different types of cables to client specification/ manufacturer's instructions.
	1.5. Report variations to site build to relevant person(s).
2. Terminate a range of cable types in accordance with manufacturing/customer requirements and/or organisation and legislative policies	2.1. Identify hazards and reduce risks.
	2.2. State necessary precautions before, during and after work.
	2.3. Identify cable types.
	2.4. Prepare cable for termination and describe how to terminate cable cores to meet required specifications and customer requirements.
	2.5. Work to client specification/ manufacturer's instructions.
	2.6. Report variations to site build to relevant persons.

3. Describe and demonstrate how to install a range of non-infrastructure equipment to specification in accordance with manufacturing/customer requirements and/or organisation and legislative policies	3.1. Identify hazards and reduce risks.
	3.2. Identify cable types.
	3.3. State necessary precautions before, during and after work.
	3.4. Install camera equipment in accordance with client specification/manufacturer's instructions.
	3.5. Identify correct polarity and connections.
	3.6. Report variations to build to relevant persons.

The taught content for this unit is taken from the following HESA courses:

- TCAM001
- TCAM002
- TCAM003.

Refer to the HESA/NHSS 8 - Highway Electrical Registration Scheme (HERS) Highway Electrical Training Specification for details.

Unit title	Highway Cameras - Routine Maintenance Techniques
Internal unit reference	HE2/16V
Regulator unit reference number	J/616/0605
Unit level	2
Unit credit value	1

Learning outcome The Learner will:	Assessment criteria The Learner can:
1. Understand how to ensure routine optical maintenance in accordance with manufacturing/customer requirements and/or organisation and legislative policies	1.1. Identify hazards and risks.
	1.2. State necessary precautions before, during and after accessing cameras.
	1.3. Describe how to carry out cleaning of equipment in accordance with client specification/manufacturer's instructions.
	1.4. Describe how to carry out functional testing in accordance with client specification/manufacturer's instructions.
	1.5. Report actions and unsafe site conditions to relevant personnel.

The taught content for this unit is taken from the following HESA courses:

- TCAM004.

Refer to the HESA/NHSS 8 - Highway Electrical Registration Scheme (HERS) Highway Electrical Training Specification for details.

Unit title	Highway Cameras/Detectors - Reactive Maintenance Techniques
Internal unit reference	HE2/17V
Regulator unit reference number	L/616/0606
Unit level	2
Unit credit value	2

Learning outcome The Learner will:	Assessment criteria The Learner can:
1. Describe and demonstrate how to carry out non-routine maintenance on camera head assemblies in accordance with manufacturing/customer requirements and/or organisation and legislative policies	1.1. Identify hazards and reduce risks.
	1.2. State necessary precautions before accessing camera/head assembly.
	1.3. Carry out maintenance of equipment in accordance with client specification/manufacturer's instructions.
	1.4. Carry out alignment and functional testing in accordance with client specification/manufacturer's instructions.
	1.5. Report actions and unsafe site conditions to relevant personnel.
2. State the principles necessary to facilitate the fundamental common concepts associated with the understanding of cable maintenance in accordance with manufacturing and/or organisation and legislative policies	2.1. Identify hazards and reduce risks.
	2.2. State necessary precautions before and during maintenance activities.
	2.3. Describe how to maintain different types of cables in accordance with client specification/manufacturer's instructions.
	2.4. Identify cable types.
	2.5. Describe how to test cable to required client specification/manufacturer's instructions.
	2.6. Report actions and unsafe sites to relevant personnel.

Learning outcome The Learner will:	Assessment criteria The Learner can:
3. Describe and demonstrate how to commission and carry out first-line maintenance key skills on detector equipment in accordance with manufacturing and/or organisation and legislative policies (specific to equipment types)	3.1. Identify hazards and risks.
	3.2. Identify typical faults.
	3.3. List and describe the associated component parts of the detector.
	3.4. Explain site data-sheet information.
	3.5. Explain the operation of the detector and associated modes.
	3.6. Describe the hardware operational and configuration features.
	3.7. State the maintenance requirements for the detector.
	3.8. Describe how to diagnose and rectify faults by module replacement.
	3.9. Describe how to test and commission detectors on-site.
	3.10. Report actions and unsafe sites to relevant personnel.

The taught content for this unit is taken from the following HESA courses:

- TCAM005
- TCAM006
- TCAM007.

Refer to the HESA/NHSS 8 - Highway Electrical Registration Scheme (HERS) Highway Electrical Training Specification for details.

Unit title	Communications/VMS - Fundamental Principles
Internal unit reference	HE2/19V
Regulator unit reference number	H/616/0613
Unit level	2
Unit credit value	3

Learning outcome The Learner will:	Assessment criteria The Learner can:
1. Understand concepts associated with communications operations and to maintain a combination of cabinet types in accordance with manufacturing and/or organisation and legislative policies	1.1. Identify hazards and reduce risks.
	1.2. State necessary precautions before accessing cabinets.
	1.3. State fault reporting mechanisms.
	1.4. State the principles of electrical/ mechanical fault assessment and rectification.
	1.5. Describe the communications hardware concepts.
	1.6. Identify diagnostic equipment and methods of interrogation.
	1.7. Describe how to report actions and unsafe site conditions to relevant personnel.
2. Understand the principles of communications detection necessary to facilitate the fundamental common concepts associated with the understanding of installation, commissioning and first-line maintenance key skills in accordance with manufacturing and/or organisation and legislative policies	2.1. Identify hazards and reduce risks.
	2.2. State necessary precautions before accessing cabinets.
	2.3. State fault reporting mechanisms.
	2.4. State the principles associated with detection and loop configurations.
	2.5. State the common operational features.
	2.6. State the principles of electrical/ mechanical fault assessment and rectification.
	2.7. Describe how to report actions and unsafe site conditions to relevant personnel.

The taught content for this unit is taken from the following HESA courses:

- TCOM001
- TCOM002.

Refer to the HESA/NHSS 8 - Highway Electrical Registration Scheme (HERS) Highway Electrical Training Specification for details.

Unit title	Communications/VMS - Installation of Non-Infrastructure Equipment
Internal unit reference	HE2/20V
Regulator unit reference number	D/616/0531
Unit level	2
Unit credit value	3

Learning outcome The Learner will:	Assessment criteria The Learner can:
1. Understand the required steps to install a generic set of typical non-infrastructure equipment used for communications in accordance with manufacturing and/or organisation and legislative policies	1.1. Identify appropriate health and safety measures to safeguard workers and public.
	1.2. Identify hazards and reduce risks.
	1.3. State necessary precautions before, during and after installing cables.
	1.4. Describe how to install communications equipment.
	1.5. Identify cable types.
	1.6. Identify correct polarity and connections.
	1.7. Describe how to work to manufacturer's and specification instructions.
	1.8. Describe how to report variations to site build to relevant person(s).
2. Understand the required steps to install a generic set of typical non-infrastructure equipment used for variable message signs in accordance with manufacturing and/or organisation and legislative policies	2.1. State appropriate health and safety measures to safeguard workers and public.
	2.2. Identify hazards and reduce risks.
	2.3. Describe how to take necessary precautions before, during and after installing cables.
	2.4. Describe how to install variable message sign equipment.
	2.5. Identify cable types.
	2.6. Identify correct polarity and connections.

Learning outcome The Learner will:	Assessment criteria The Learner can:
	2.7. Describe how to work to manufacturer's and specification instructions.
	2.8. Describe how to report variations to site build to relevant person(s).

The taught content for this unit is taken from the following HESA courses:

- TCOM003
- TVSM001.

Refer to the HESA/NHSS 8 - Highway Electrical Registration Scheme (HERS) Highway Electrical Training Specification for details.

Unit title	Communications/VMS - Reactive Maintenance Techniques
Internal unit reference	HE2/21V
Regulator unit reference number	M/616/0534
Unit level	2
Unit credit value	3

Learning outcome The Learner will:	Assessment criteria The Learner can:
1. Understand the required steps to commission and carry out first-line maintenance key skills on variable message signs equipment as stated, in accordance with manufacturing and/or organisation and legislative policies	1.1. Identify hazards and reduce risks.
	1.2. Explain fault reports and be able to confirm faults.
	1.3. List and describe the associated component parts of the equipment.
	1.4. Describe how to diagnose and rectify faults by module replacement.
	1.5. Describe how to use diagnostic equipment commands.
	1.6. Describe how to test and commission equipment to specification.
	1.7. Describe how to report actions and unsafe sites to relevant personnel.
2. Understand the required steps and principles to facilitate the fundamental common concepts associated with the understanding of cable maintenance in accordance with manufacturing and/or organisation and legislative policies	2.1. Identify hazards and reduce risks.
	2.2. List on-site precautions.
	2.3. Identify different cable types and maintenance including data, signal, supply power, neutrals and active cables.
	2.4. Describe testing methods including cable attenuation and frequency response and sheath testing.
	2.5. Report on actions.
3. Understand the required steps to commission and carry out first-line maintenance key skills on communications equipment as stated above, in accordance with manufacturing and/or organisation and legislative policies	3.1. Identify hazards and reduce risks.
	3.2. Explain fault reports and be able to confirm faults.
	3.3. List and describe the associated component parts of the equipment.

Learning outcome The Learner will:	Assessment criteria The Learner can:
	3.4. Describe how to diagnose and rectify faults by module replacement.
	3.5. Describe the use of diagnostic equipment commands.
	3.6. Describe how to test and commission equipment to specification.
	3.7. Describe how to report actions and unsafe sites to relevant personnel.

The taught content for this unit is taken from the following HESA courses:

- TVSM002
- TVSM003
- TCOM004
- TCOM005.

Refer to the HESA/NHSS 8 - Highway Electrical Registration Scheme (HERS) Highway Electrical Training Specification for details.

Unit title	Public Lighting Awareness
Internal unit reference	HE2/4V
Regulator unit reference number	T/616/0535
Unit level	2
Unit credit value	1

Learning outcome The Learner will:	Assessment criteria The Learner can:
1. Know how to identify public lighting and traffic sign equipment and highway boundaries	1.1. Describe how to confirm site details and define boundaries.
	1.2. Identify different types of equipment under, on and over the highway.
	1.3. Describe the scope of work likely to be carried out on different types of equipment.
	1.4. State the application of common types of public lighting systems.
	1.5. Identify different power supply equipment.
	1.6. Describe how to confirm the suitability of fixing methods for public lighting systems in the environment of the installation, including the threat from vandalism and unauthorised access.
	1.7. Describe how to dispose of public lighting equipment and components.
	1.8. Identify correct size/type of sign/post for road environment.
	1.9. Describe how to correctly identify the position of sign assemblies in accordance with status/speed of road, traffic orders etc.
	1.10. Identify appropriate offsets and mounting heights in accordance with status of road and the presence of other furniture, e.g. safety fences.
2. Know how to identify public lighting circuits	2.1. Identify electrical components used in street lighting and traffic signs.

Learning outcome The Learner will:	Assessment criteria The Learner can:
	2.2. Identify the difference between wiring in head and remote gear units.
	2.3. Recognise wiring systems for illuminated signs, bollards and beacons.
	2.4. Describe how to compare various circuits for photocells.
	2.5. Describe how to identify cable layouts for private loop supplies.
	2.6. Describe how to identify options for connecting circuits into supply cut-outs.
	2.7. Identify correct fusing arrangements.

The taught content for this unit is taken from the following HESA courses:

- 203
- 404.

Refer to the HESA/NHSS 8 - Highway Electrical Registration Scheme (HERS) Highway Electrical Training Specification for details.

Unit title	Public Lighting - Installation Techniques
Internal unit reference	HE2/5V
Regulator unit reference number	F/616/0537
Unit level	2
Unit credit value	7

Learning outcome The Learner will:	Assessment criteria The Learner can:
1. Understand how to install lighting columns	1.1. Identify different types of loads and centres of gravity.
	1.2. Demonstrate how to assist a vehicle driver in manoeuvring on-site by recognised signalling methods.
	1.3. Identify the range of lifting gear, including methods of slinging.
	1.4. Identify different types of footway and carriageway materials.
	1.5. Describe how to carry out minor excavation in the highway.
	1.6. Identify suitable excavating materials for reuse as backfill.
	1.7. Describe how to locate position of column.
	1.8. Identify an appropriate method of lifting column.
	1.9. Describe how to install rooted columns correctly in hole, including correct alignment and backfilling.
	1.10. Identify various alternative bases.
	1.11. Describe how to prepare and fill concrete bases for equipment.
	1.12. Describe how to bolt equipment to prepared bases in accordance with specification.
	1.13. Identify the correct method for removing a column and leaving the site safe.

Learning outcome The Learner will:	Assessment criteria The Learner can:
	1.14. Identify the correct method for realigning a column.
2. Understand how to install lighting pillars	2.1. Describe how to locate position of cabinet.
	2.2. Identify manufacturer's instructions for the size of excavation to be dug.
	2.3. Describe how to refer difficulties in excavating hole in marked position.
	2.4. Describe how to install cabinet in accordance with manufacturer's instructions.
	2.5. Describe how to correctly align and backfill.
	2.6. Describe how to prepare and fill concrete bases for equipment.
	2.7. Describe how to bolt equipment to prepared bases in accordance with specification.
3. Understand how to install lighting bollards	3.1. Identify manufacturer's instructions for the size of excavation to be dug.
	3.2. Describe how to refer difficulties in excavating hole in marked position.
	3.3. Describe how to install bollard correctly in accordance with manufacturer's instructions.
	3.4. Describe how to correctly align and backfill.
	3.5. Describe how to prepare and fill concrete bases for equipment.
	3.6. Describe how to bolt equipment to prepared bases in accordance with specification.
	3.7. Describe how to install bollard onto base in accordance with manufacturer's instructions.

Learning outcome The Learner will:	Assessment criteria The Learner can:
	3.8. Describe how to correctly orientate and secure.
	3.9. Describe why only a person who is fully trained and authorised should connect the bollard to the cut-out.
4. Understand how to install and connect luminaires and control gear	4.1. Identify hazards and reduce risks.
	4.2. Describe how to take necessary precautions before, during and after completion of works.
	4.3. Describe how to wire lanterns and fit onto brackets and columns.
	4.4. Describe how to install brackets/lantern assembly onto columns.
	4.5. Describe how to avoid damage to cables.
	4.6. Describe how to correctly line up and secure equipment as placed.
	4.7. Describe how to install sign plates and signlights to posts.
	4.8. Describe how to install control gear and wiring.
	4.9. Identify correct lamp circuit diagram.
	4.10. Identify appropriate cables.
	4.11. Describe how to install control gear securely.
	4.12. Describe how to ensure cables are correctly stripped back and terminated in gear.
	4.13. Identify that wiring is in accordance with circuit diagram.
	4.14. Describe how to ensure wiring avoids obstructing access to gear and is neatly laid out.
	4.15. Identify heat-resistant sleeving and where it might be used.

Learning outcome The Learner will:	Assessment criteria The Learner can:
	4.16. Describe how to ensure unit operates correctly.
	4.17. Describe how to test operation of photoelectric cell.
5. Understand how to install and connect underground cables	5.1. Identify the purpose and need for different underground cable systems.
	5.2. Identify the purpose and need for cable marker tape and ducts.
	5.3. Identify different types of cables.
	5.4. Identify appropriate excavation procedures.
	5.5. Describe how to carry out excavation of trench in accordance with recognised safe working practices to the correct depth.
	5.6. Describe how to install underground cables.
	5.7. Describe how to backfill and reinstate trench in accordance with specification.
	5.8. Identify different types of cables and their individual termination requirements.
	5.9. Describe how to trim and prepare cables and fit cable glands or other termination fittings.
	5.10. Identify appropriate precautions to take to ensure safe connection into cut-out.

The taught content for this unit is taken from the following HESA courses:

- 211
- 212
- 301.2
- 501
- 502
- 504
- 505
- 506
- 507
- 508
- 709.

Refer to the HESA/NHSS 8 - Highway Electrical Registration Scheme (HERS) Highway Electrical Training Specification for details.

Unit title	Public Lighting - Routine Maintenance Techniques
Internal unit reference	HE2/6V
Regulator unit reference number	J/616/0619
Unit level	2
Unit credit value	1

Learning outcome The Learner will:	Assessment criteria The Learner can:
1. Know how to identify the different types of routine maintenance	1.1. Identify items to be inspected.
	1.2. Identify the differences between inspections and tests.
	1.3. Identify the types of raising and lowering columns.
	1.4. Describe why a raising and lowering (R&L) column should be lowered before commencement of any work.
	1.5. Identify different types of columns and lanterns and methods of entry.
	1.6. Identify mechanical components that require lubrication.
	1.7. Identify the requirements for replacing like-for-like components.
	1.8. Identify items that may need reporting.
	1.9. State how to dispose of redundant equipment and components in a safe and approved manner.
	1.10. Identify how to use tools and equipment in a safe and correct manner.
2. Understand how to carry out routine maintenance	2.1. Identify items to be inspected.
	2.2. Describe how to carry out optical mechanical and electrical inspections.
	2.3. Identify the differences between inspections and tests.
	2.4. Describe how to record results of inspection and record variations.

Learning outcome The Learner will:	Assessment criteria The Learner can:
	2.5. Identify the need to isolate the supply before carrying out work.
	2.6. Describe how to lower and raise columns.
	2.7. Carry out cleaning of luminaires and column base compartments.
	2.8. Describe how to carry out lubrication of mechanical components.
	2.9. Identify the requirements for replacing like-for-like components.
	2.10. Describe how to replace components.
	2.11. Describe how to test for correct operation.
	2.12. Describe how to identify items that may need reporting.
	2.13. Describe how to dispose of redundant equipment and components in a safe and approved manner.
	2.14. Describe how to use tools and equipment in a safe and correct manner.

The taught content for this unit is taken from the following HESA courses:

- 214
- 603
- 604
- 605
- 608.

Refer to the HESA/NHSS 8 - Highway Electrical Registration Scheme (HERS) Highway Electrical Training Specification for details.

Unit title	Public Lighting - Reactive Maintenance Techniques
Internal Unit Reference	HE2/7V
Regulator unit reference number	A/616/0620
Unit level	2
Unit credit value	2

Learning outcome The Learner will:	Assessment criteria The Learner can:
1. Know how to define reactive maintenance and how to carry out planned reactive maintenance on lighting units	1.1. Describe how to replace equipment identified as probably being faulty or at end of life.
	1.2. Describe how to adhere to safety precautions when isolating/handling DNO/iDNO cut-outs.
	1.3. Describe how to leave equipment in normal operating mode.
	1.4. Identify how to record details of work carried out and how to report variations.
	1.5. Describe how to dispose of redundant equipment and components in a safe and approved manner.
	1.6. Identify different types of cables and their individual jointing requirements.
	1.7. Prepare single-phase cables to accommodate cable joint.
	1.8. Identify cores to be jointed and prepared.
2. Know how to define reactive maintenance and how to carry out planned reactive maintenance on underground cables	2.1. Use appropriate tools for jointing.
	2.2. Ensure continuity of earth.
	2.3. Ensure correct colour coding of cores and sleeve as appropriate.
	2.4. Enclose joint and fill with compound.
	2.5. Describe how to complete appropriate paperwork.
	2.6. Describe how to take necessary precautions before, during and after completion of emergency works.

	2.7. Identify the need for attendance as soon as possible.
	2.8. Identify the emergency and describe how to carry out any work to make the site safe.
3. Know how to deal with unplanned reactive maintenance safely	3.1. Identify when to report to supervisor for advice and instructions.
	3.2. Identify when to call out the DNO/ iDNO.
	3.3. Describe how to make the site safe to prevent access by the general public.
	3.4. Describe how to report actions and
	3.5. identify additional work if required.

The taught content for this unit is taken from the following HESA courses:

- 214
- 404
- 604
- 606.

Refer to the HESA/NHSS 8 - Highway Electrical Registration Scheme (HERS) Highway Electrical Training Specification for details.

Unit title	Public Lighting - Specific Techniques - Surface Protection
Internal unit reference	HE2/8V
Regulator unit reference number	F/616/0621
Unit level	2
Unit credit value	1

Learning outcome The Learner will:	Assessment criteria The Learner can:
1. Know how to prepare surfaces ready for protective coats to be applied	1.1. Identify hazards and risks.
	1.2. Describe how to take necessary precautions before, during and after completion of works.
	1.3. Identify the condition of the highway electrical equipment's existing surface protection system.
	1.4. Identify the preparation required.
	1.5. Identify manufacturer's instructions and data sheets.
	1.6. Identify environmental issues.
	1.7. State how to dispose of redundant material and equipment properly.
	1.8. Identify items that may need reporting.
2. Know how to identify different surface protection systems and how these are applied	2.1. Identify manufacturer's instructions and data sheets.
	2.2. Identify environmental issues.
	2.3. Identify different forms of surface protection.
	2.4. Apply surface protection.
	2.5. State how to dispose of redundant material and equipment properly.
	2.6. Identify items that may need reporting.

The taught content for this unit is taken from the following HESA courses:

- 602.

Refer to the HESA/NHSS 8 - Highway Electrical Registration Scheme (HERS) Highway Electrical Training Specification for details.

Unit title	Public Lighting - Specific Techniques
Internal unit reference	HE2/9V
Regulator unit reference number	J/616/0622
Unit level	2
Unit credit value	2

Learning outcomes The Learner will:	Assessment criteria The Learner can:
1. Know how to carry out the recording of results from electrical inspection and testing data collection	1.1. State the limits of the work being undertaken.
	1.2. Identify the organisational procedures required.
	1.3. Identify appropriate test equipment correctly and safely.
	1.4. State the key items to be recorded.
	1.5. Identify appropriate action for results not in accordance with organisation's written procedures.
	1.6. Record and report variations.
2. Understand how to identify and locate simple faults on underground cables	2.1. Identify and use different types of test equipment available.
	2.2. Describe the different types of circuits used for underground cable systems.
	2.3. Describe how to carry out safe and systematic methods for locating faults.
	2.4. Describe how to replace faulty sections of cable using approved methods.
	2.5. Describe how to record details of work carried out and how to report variations.

The taught content for this unit is taken from the following HESA courses:

- 705
- 711.

Refer to the HESA/NHSS 8 - Highway Electrical Registration Scheme (HERS) Highway Electrical Training Specification for details.

Unit title	Slot cutting - Cutting to Specification
Internal unit reference	HE2/22V
Regulator unit reference number	L/616/0623
Unit level	2
Unit credit value	1

Learning outcome The Learner will:	Assessment criteria The Learner can:
1. **Understand the required steps to cut appropriate road slots to the required specification for mode of operation, in accordance with manufacturing and/or organisation and legislative policies**	1.1. Identify hazards and risks.
	1.2. Identify necessary precautions before, during and after cutting the slot(s)
	1.3. State different slot configurations.
	1.4. Describe how to work to customer specification/manufacturer's instructions.
	1.5. Describe how to report variations to site build to relevant person(s).

The taught content for this unit is taken from the following HESA courses:

- TSC001.

Refer to the HESA/NHSS 8 - Highway Electrical Registration Scheme (HERS) Highway Electrical Training Specification for details.

Unit title	Slot Cutting - Cable Laying and Sealing
Internal Unit reference	HE2/23V
Regulator Unit reference number	R/616/0624
Unit level	2
Unit credit value	1

Learning outcome The Learner will:	Assessment criteria The Learner can:
1. Understand the required steps to install and seal to the required specification for mode of operation, in accordance with manufacturing and/or organisation and legislative policies	1.1. Identify hazards and risks.
	1.2. Describe the necessary precautions before, during and after installing equipment.
	1.3. Identify cable types.
	1.4. Describe how to install different types of cables.
	1.5. Identify mechanism(s) for sealing slots.
	1.6. Describe how to work to customer specification/manufacturer's instructions.
	1.7. Describe how to report variations to site build to relevant person(s).

The taught content for this unit is taken from the following HESA courses:

- TSC002.

Refer to the HESA/NHSS 8 - Highway Electrical Registration Scheme (HERS) Highway Electrical Training Specification for details.

Unit title	Slot Cutting - Testing and Repair of Cables
Internal unit reference	HE2/24V
Regulator unit reference number	Y/616/0625
Unit level	2
Unit credit value	1

Learning outcome The Learner will:	Assessment criteria The Learner can:
1. Understand the required steps to test and repair detection cables to the required specification for mode of operation, in accordance with manufacturing and/or organisation and legislative policies	1.1. Identify hazards and risks.
	1.2. Identify necessary precautions before and during maintenance activities.
	1.3. Describe how to maintain different types of cables.
	1.4. Identify cable types.
	1.5. Describe how to work to required specifications.
	1.6. Describe how to test cable to required specifications.
	1.7. Describe how to report actions and unsafe sites to relevant person(s).

The taught content for this unit is taken from the following HESA courses:

- TSC003.

Refer to the HESA/NHSS 8 - Highway Electrical Registration Scheme (HERS) Highway Electrical Training Specification for details.

Unit title	Slot Cutting - Access to Cabinets Through Ducts
Internal unit reference	HE2/25V
Regulator unit reference number	H/616/0627
Unit level	2
Unit credit value	1

Learning outcome The Learner will:	Assessment criteria The Learner can:
1. Understand the required steps to access cabinets for the connection of road loop cables, whilst identifying the electrical hazards and reducing the associated risk to ensure the safety of the individual and to the integrity of the equipment	1.1. Identify hazards and risks.
	1.2. Describe the necessary precautions before, during and after installing equipment.
	1.3. Identify cable types.
	1.4. Identify cabinet types and means of access.
	1.5. Describe how to install different types of cables, excluding connections.
	1.6. Describe how to work to client specifications/manufacturer's instructions including reinstatement of base seal.
	1.7. Describe how to report variations to site build to relevant person(s).

The taught content for this unit is taken from the following HESA courses:

- TSC004.

Refer to the HESA/NHSS 8 - Highway Electrical Registration Scheme (HERS) Highway Electrical Training Specification for details.

Unit title	Traffic and Pedestrian Signal Awareness
Internal unit reference	HE2/10V
Regulator unit reference number	M/616/0629
Unit level	2
Unit credit value	2

Learning outcomes The Learner will:	Assessment criteria The Learner can:
1. Understand the equipment and common methods of traffic control	1.1. State the need for traffic control measures.
	1.2. Identify three modes of traffic control.
	1.3. State ten traffic signal and pedestrian signal terms.
	1.4. Identify basic detection methods.
	1.5. State the two common traffic control types.
	1.6. State other methods of remote junction control.
2. Understand the drawing symbols, equipment and concepts of traffic and pedestrian controls	2.1. Describe basic traffic terms.
	2.2. Describe traffic and pedestrian controller applications and modes.
	2.3. Describe the basic principles and facilities associated with controller specification sheets.
	2.4. Identify basic controller communications using a range of equipment.
	2.5. Identify and read site plans.

The taught content for this unit is taken from the following HESA courses:

- M203
- M301.

Refer to the HESA/NHSS 8 - Highway Electrical Registration Scheme (HERS) Highway Electrical Training Specification for details.

Unit title	Traffic Signals - Installation Techniques
Internal unit reference	HE2/11V
Regulator unit reference number	H/616/0630
Unit level	2
Unit credit value	5

Learning outcomes The Learner will:	Assessment criteria The Learner can:
1. Understand how to install poles, brackets and heads in accordance with manufacturing and/or company and legislative policies	1.1. State how to identify hazards and reduce risks in respect of installation works.
	1.2. Identify precautions to take before, during and after planting equipment.
	1.3. Describe how to install different types of poles associated with traffic installations.
	1.4. Identify precautions when preparing concrete bases.
	1.5. Describe how to install different types of heads associated with traffic installations.
	1.6. Describe how to align aspect heads in accordance with manufacturing instructions.
	1.7. Describe how to install and assemble brackets and extension arms.
	1.8. Identify precautions and correctly prepare concrete.
	1.9. Describe how to check alignment and positioning.
	1.10. Describe how to report variations to site build to relevant person(s).
2. Understand how to install cabinets in accordance with manufacturing and/or company and legislative policies	2.1. State how to identify hazards and reduce risks in respect of installation works.
	2.2. Identify precautions to take before, during and after planting equipment.

Learning outcomes The Learner will:	Assessment criteria The Learner can:
	2.3. Identify precautions when preparing concrete bases.
	2.4. Describe how to install cabinet stools and housings.
	2.5. Identify precautions and correctly prepare concrete.
	2.6. Describe how to backfill and base seal to manufacturing instructions.
	2.7. Describe how to check alignment and positioning.
	2.8. Describe how to report variations to site build to relevant person(s).
3. Understand how to install a combination of detection equipment	3.1. Describe how to install different types of detection equipment.
	3.2. Cable and connect detection equipment types correctly.
	3.3. Identify various detection types.
	3.4. Identify precautions to take before, during and after installing cables.
	3.5. Correctly install urban traffic control units.
	3.6. Correctly install monitoring and control equipment.
	3.7. Identify cable types.
	3.8. Identify correct polarity connections.
4. Understand how to install and connect underground cables, supply tails and earth bonding	4.1. Describe how to install different types of underground cables.
	4.2. Correctly strip and prepare cable for final terminations.
	4.3. Terminate cable cores to meet required specifications and customer requirements.
	4.4. Identify cable types.

Learning outcomes The Learner will:	Assessment criteria The Learner can:
	4.5. Recognise types and methods of earth bonding.
	4.6. Test earth bonding.
	4.7. Identify cable types and designations.
	4.8. Identify correct polarity connections.
	4.9. Describe how to report variations to site build to relevant person(s).

The taught content for this unit is taken from the following HESA courses:

- M501
- M502
- M503
- M504
- M505
- M506.

Refer to the HESA/NHSS 8 - Highway Electrical Registration Scheme (HERS) Highway Electrical Training Specification for details.

Unit title	Traffic Signals - Routine Maintenance Techniques
Internal unit reference	HE2/12V
Regulator unit reference number	M/616/0632
Unit level	2
Unit credit value	2

Learning outcomes The Learner will:	Assessment criteria The Learner can:
1. Understand how to carry out routine maintenance, including lamp changing and cleaning	1.1. Identify precautions to take before accessing poles, heads and push-button units.
	1.2. Describe how to carry out cleaning of equipment.
	1.3. Carry out lamp changing.
	1.4. Carry out functional testing.
	1.5. Identify and work with LV and ELV circuits safely.
	1.6. Describe how to report actions and unsafe site conditions to correct personnel.
2. Understand how to maintain poles, brackets and lantern types in accordance with manufacturing and/or company and legislative policies	2.1. Identify precautions to take before accessing poles and heads.
	2.2. Describe and complete fault reports.
	2.3. Describe how to carry out electrical/mechanical fault assessment using a range of test equipment.
	2.4. Describe how to maintain different types of heads associated with traffic installations.
	2.5. Carry out manufacturer testing.
	2.6. Identify and work with LV circuits safely.
	2.7. State how to report actions and unsafe site conditions to correct personnel.

The taught content for this unit is taken from the following HESA courses:

- M601a
- M601b.

Refer to the HESA/NHSS 8 - Highway Electrical Registration Scheme (HERS) Highway Electrical Training Specification for details.

Unit title	Traffic Signals - Reactive Maintenance Techniques
Internal unit reference	HE2/13V
Regulator unit reference number	A/616/0634
Unit level	2
Unit credit value	7

Learning outcomes The Learner will:	Assessment criteria The Learner can:
1. Understand the common concepts associated with traffic controller operations so as to maintain a combination of cabinet types	1.1. Identify precautions to take before accessing cabinets.
	1.2. Describe and complete fault reports.
	1.3. Carry out electrical/mechanical fault assessment and rectification.
	1.4. Describe the traffic controller hardware concepts.
	1.5. Use common handset command functions during investigations.
	1.6. Describe how to report actions and unsafe site conditions to correct personnel.
2. Understand the principles of vehicle and pedestrian detection necessary to facilitate installation, commissioning and first-line maintenance key skills	2.1. Take necessary precautions before accessing cabinets.
	2.2. Describe and complete fault reports.
	2.3. Carry out electrical/mechanical fault assessment and rectification using a range of test equipment.
	2.4. State the principles associated with detection and loop configurations.
	2.5. State the requirements for detector configurations and common operational features.
	2.6. Describe how to report actions and unsafe site conditions to relevant personnel.
3. Understand the principles and common concepts associated with the understanding of underground cable maintenance	3.1. Identify cable types.
	3.2. Describe how to test cable to required specifications.

Learning outcomes The Learner will:	Assessment criteria The Learner can:
	3.3. Work to manufacturer's instructions.
4. Understand supply tails and earthing to accepted commissioned standards	4.1. Identify precautions to take before and during maintenance of cables.
	4.2. Identify types and methods of earth bonding.
	4.3. Test earth bonding using correct test equipment.
	4.4. Identify cable types and designations.
	4.5. Identify correct polarity connections.
5. Understand what is required to commission and carry out first-line maintenance key skills on specified pedestrian-crossing controller equipment	5.1. Identify fault reports and be able to confirm faults.
	5.2. List and describe the associated component parts of the controller.
	5.3. Explain site data sheets.
	5.4. Use the handset commands.
	5.5. Test and commission controllers.
	5.6. Test and prove RLMU and LMU configurations.
	5.7. Successfully download site data and test.
6. Understand what is required to commission and carry out first-line maintenance key skills on specified junction controller equipment	6.1. Identify fault reports and be able to confirm faults.
	6.2. List and describe the associated component parts of the controller.
	6.3. Explain site data sheets.
	6.4. Diagnose and rectify faults by block replacement.
	6.5. Use the handset commands.
	6.6. Test and commission controllers.
	6.7. Test and prove RLMU and LMU configurations.

Learning outcomes The Learner will:	Assessment criteria The Learner can:
	6.8. Successfully download site data and test.
7. Understand what is required to commission and carry out first-line maintenance key skills on specified detector equipment	7.1. Identify fault reports and be able to confirm faults.
	7.2. Describe the associated component parts of the detector.
	7.3. Explain site data-sheet requirements.
	7.4. Explain the operation of the detector and associated modes.
	7.5. Describe the hardware operational and configuration features.
	7.6. State the maintenance requirements for the detector.
	7.7. Diagnose and rectify faults by block replacement.
	7.8. Test and commission detector.

The taught content for this unit is taken from the following HESA courses:

- M602
- M603
- M604
- M605
- M608
- M609
- M611.

Refer to the HESA/NHSS 8 - Highway Electrical Registration Scheme (HERS) Highway Electrical Training Specification for details.

Unit title	Traffic Signals - Specific Techniques
Internal unit reference	HE2/14V
Regulator unit reference number	F/616/0635
Unit level	2
Unit credit value	1

Learning outcomes The Learner will:	Assessment criteria The Learner can:
1. Understand how to inspect non-energised installations to ensure installations are in accordance with manufacturing/customer requirements and/or organisation and legislative policies	1.1. Identify precautions to take before, during and after installing cables.
	1.2. Describe how to check installations are compliant with manufacturer/ customer specifications.
	1.3. Describe how to check installations are compliant with current legislative requirements.
	1.4. Describe how to check site requirements.
	1.5. Identify how to produce a defect rectification list.
	1.6. Report variations to site build to relevant person(s).
2. Understand the procedures to be used on highway electrical equipment when carrying out non-energised testing	2.1. Describe how to gain authority to carry out testing after site isolation confirmation.
	2.2. Describe the concepts of earthing, bonding and insulation.
	2.3. Use appropriate test equipment.
	2.4. State the need for non-energised electrical testing.
	2.5. List the tests, test equipment and test methods.
	2.6. Complete and interpret the appropriate parts of a traffic installation completion certificate.

The taught content for this unit is taken from the following HESA courses:

- M507.

Refer to the HESA/NHSS 8 - Highway Electrical Registration Scheme (HERS) Highway Electrical Training Specification for details.

5.2 Lantra Awards Level 3 Certificate in Highway Electrical Work

To achieve this qualification a Learner must achieve three core mandatory units and all of the units within their chosen pathway.

Unit Titles	M/O/MO	GLH	Credits
Core mandatory (all)			
Advanced Electrical Theory and Practice within the Highway Electrical Sector	M	36	4
Electrical Inspection and Testing (Pathway Specific)	M	35	4
Coordinate the Work of Others in Highway Electrical Work	M	26	3
Group A – Cameras (all)			
Highway Cameras - Specialist Techniques - Transmission Systems and Techniques Fundamentals	MO	5	1
Highway Cameras - Specialist Techniques - Commissioning Procedures for Cameras	MO	11	1
Highway Cameras - Specialist Techniques - Ancillary Equipment Skills	MO	11	1
Group B - Highway Communications/Variable Message Signs			
Communications - Specialist Techniques - Maintenance of Specialist Communications Equipment	MO	5	1
VMS - Specialist Techniques - Maintenance of Specialist Variable Message Sign Equipment	MO	8	1
VMS - Specialist Techniques - Commissioning Procedures	MO	5	1
Group C – Public Lighting			
Public Lighting - Specialist Routine Maintenance	MO	11	1
Public Lighting - Specialist Reactive Maintenance	MO	11	1
Group D – Traffic Signals			
Traffic Signals - Advance Principles	MO	39	4
Traffic Signals - Specialist Techniques - Inspection and Commissioning	MO	29	3
Traffic Signals - Specialist Techniques - Data Transmission and Ancillary Control	MO	34	4
Traffic Signals - Specialist Techniques - Microprocessor Optimised Vehicle Actuation (MOVA)	MO	47	5

Unit title	Advanced Electrical Theory and Practice within the Highway Electrical Sector
Internal unit reference	HE3/1V
Regulator unit reference number	H/616/0563
Unit level	3
Unit credit value	4

Learning outcomes The Learner will:	Assessment criteria The Learner can:
1. Know how to explain electrical terms	1.1. Define the terms: • Current • Voltage • Resistance • Inductance • Impedance • Power.
	1.2. Explain and use Ohm's law.
2. Know the electrical items used in highway electrical works	2.1. Identify different electrical components and their functions.
	2.2. Identify typical earthing arrangements and bonding.
3. Know how to use advanced calculations	3.1. Explain power calculations.
	3.2. Use power calculations, including power factor correction.
4. Understand the responsibilities and actions that to comply with current industry regulations and guidance	4.1. Identify the electrical hazards and risks involved in highway electrical works.
	4.2. Explain the scope of the regulations relating to electricity at work.
	4.3. State the requirements of the regulations in respect of live working and competency.
	4.4. State the regulations associated with the safety, design and location of electrical equipment.
	4.5. Identify the procedures necessary for the installation, maintenance, inspection and working practices used in electrical installations.

Learning outcomes The Learner will:	Assessment criteria The Learner can:
5. Understand how to comply with BS7671 and related guidance	5.1. Identify the need for standards, regulations, testing and certification.
	5.2. Explain the scope and plan of BS7671.
	5.3. Identify how BS7671 applies to highway electrical installations.
	5.4. Identify key terminology.
	5.5. Explain methods of protection available in relation to highway electrical installations.

The taught content for this unit is taken from the following HESA courses:

- 401.1
- 401.2
- 402
- 403.

Refer to the HESA/NHSS 8 - Highway Electrical Registration Scheme (HERS) Highway Electrical Training Specification for details.

Unit title	Electrical Inspection and Testing (Pathway Specific)
Internal unit reference	HE3/1V
Regulator unit reference number	H/616/0563
Unit level	3
Unit credit value	4

Learning outcomes The Learner will:	Assessment criteria The Learner can:
1. Understand the requirements for the electrical inspection and testing of new highway electrical installations	1.1. Explain earthing, bonding and insulation as described in the regulations.
	1.2. Explain the differences between initial verification and periodic condition reporting.
2. Understand the procedures for testing new highway electrical installations	2.1. Identify the various tests, test equipment and test methods for highway electrical installations.
	2.2. Use appropriate test equipment E
	2.3. explain the reasons for an appropriate record system.
	2.4. Describe how to carry out initial inspection and testing of highway electrical equipment.
	2.5. Check the results against the regulations and guidance and identify appropriate action for unsatisfactory results.
	2.6. Record and report variations.
	2.7. Complete appropriate, recognised certification.
3. Understand the procedures for periodic electrical inspection and testing (condition reporting) of highway electrical installations	3.1. Use appropriate test equipment.
	3.2. Carry out periodic inspection and testing.
	3.3. Check the results against the regulations and guidance and identify appropriate action for unsatisfactory results.
	3.4. Record and report variations, if any.

Learning outcomes The Learner will:	Assessment criteria The Learner can:
	3.5. Complete appropriate, recognised certification.

The taught content for this unit is taken from the following HESA courses (dependant on sub-sector being assessed):

- 713
- 714
- 715/716.

Refer to the HESA/NHSS 8 - Highway Electrical Registration Scheme (HERS) Highway Electrical Training Specification for details.

Unit title	Coordinate the Work of Others in Highway Electrical Work
Internal unit reference	HE3/3V
Regulator unit reference number	M/616/0565
Unit level	3
Unit credit value	3

Learning outcomes The Learner will:	Assessment criteria The Learner can:
1. Identify how to coordinate on-site works	1.1. State the main areas of responsibility of a works coordinator.
	1.2. State the key characteristics of an effective works coordinator.
	1.3. Define assertive behaviour.
	1.4. Identify the steps in effective communication.
	1.5. State the main parts of one of the main motivational models.
	1.6. State the importance of leading by example.
2. Identify key principles associated with the coordination of quality, safety and productivity on-site	2.1. Identify the importance of effective delegation.
	2.2. Explain time-management techniques.
	2.3. Explain the importance of teamwork.
	2.4. Identify how to ensure that teams work together effectively.
	2.5. Identify methods of addressing under-performance.
	2.6. Identify the steps to take to ensure continuing satisfactory performance.
	2.7. Explain techniques for individual and team development.
	2.8. Identify the key elements of legislation, including employment and health and safety, relevant to site supervision.

Learning outcomes The Learner will:	Assessment criteria The Learner can:
3. Know the main duty holders and their responsibilities under the Construction Design and Management (CDM) regulations	3.1. Identify the purpose and benefits of CDM regulations.
	3.2. Identify the circumstances under which CDM regulations apply.
	3.3. State the main stages of a project.
	3.4. Identify the responsibilities of key duty holders at each stage.
	3.5. Explain how capability and competency may be assessed.
4. Understand the importance of CDM health and safety information	4.1. Describe the contents of pre-construction health and safety information.
	4.2. Describe the contents of the construction phase health and safety plan.
	4.3. Identify the contents of the health and safety file.
	4.4. Explain how the health and safety file should be used following project completion.

The taught content for this unit is taken from the following HESA courses:

- 801
- 802
- 805.

Refer to the HESA/NHSS 8 - Highway Electrical Registration Scheme (HERS) Highway Electrical Training Specification for details.

Unit title	Highway Cameras - Specialist Techniques - Transmission Systems and Techniques Fundamentals
Internal unit reference	HE3/10V
Regulator unit reference number	A/616/0567
Unit level	3
Unit credit value	1

Learning outcome The Learner will:	Assessment criteria The Learner can:
1. Know the transmission system fundamentals and techniques to a range of common products to enable first-line maintenance and commissioning activities	1.1. Identify hazards and risks.
	1.2. State necessary precautions before accessing cabinets.
	1.3. State the principles of transmission systems concepts and protocols.

The taught content for this unit is taken from the following HESA courses:

- TCAM009.

Refer to the HESA/NHSS 8 - Highway Electrical Registration Scheme (HERS) Highway Electrical Training Specification for details.

Unit title	Highway Cameras - Specialist Techniques - Commissioning Procedures for Cameras
Internal unit reference	HE3/11V
Regulator unit reference number	F/616/0568
Unit level	3
Unit credit value	1

Learning outcome The Learner will:	Assessment criteria The Learner can:
1. Understand the appropriate tests and commissioning processes to ensure camera equipment is appropriately commissioned and set to work	1.1. Identify hazards and risks.
	1.2. Verify installations are compliant with customer specifications/manufacturer's instructions.
	1.3. Report variations and unsafe conditions to site build to relevant person(s).
	1.4. Produce a defect rectification list.

The taught content for this unit is taken from the following HESA courses:

- TCAM008.

Refer to the HESA/NHSS 8 - Highway Electrical Registration Scheme (HERS) Highway Electrical Training Specification for details.

Unit title	Highway Cameras - Specialist Techniques - Ancillary Equipment Skills
Internal unit reference	HE3/12V
Regulator unit reference number	J/616/0569
Unit level	3
Unit credit value	1

Learning outcome The Learner will:	Assessment criteria The Learner can:
1. Understand the appropriate first-line maintenance criteria for a range of associated ancillary equipment to ensure appropriate rectification of reported faults and set to work to the required specification	1.1. Identify hazards and risks.
	1.2. Identify equipment hardware.
	1.3. Identify the ancillary facilities.
	1.4. Explain how to configure and commission the ancillary equipment.
	1.5. Use diagnostic equipment, software applications and specialist equipment.
	1.6. Carry out electrical and mechanical fault assessment.
	1.7. Use appropriate test equipment.

The taught content for this unit is taken from the following HESA courses:

- TCAM010.

Refer to the HESA/NHSS 8 - Highway Electrical Registration Scheme (HERS) Highway Electrical Training Specification for details.

Unit title	Communications - Specialist Techniques - Maintenance of Specialist Communications Equipment
Internal unit reference	HE3/13V
Regulator unit reference number	F/616/0571
Unit level	3
Unit credit value	1

Learning outcome The Learner will:	Assessment criteria The Learner can:
1. Understand the necessary equipment repair criteria to ensure correct operation and outputs as specified by the design specification	1.1. Identify hazards and reduce risks.
	1.2. Explain fault reports and be able to confirm faults.
	1.3. List and describe the associated component parts of the equipment.
	1.4. Diagnose and rectify faults by module replacement.
	1.5. Demonstrate use of the diagnostic equipment commands.
	1.6. Test and commission equipment to specification.
	1.7. Describe how to report actions and unsafe sites to relevant personnel.

The taught content for this unit is taken from the following HESA courses:

- TCOM005.

Refer to the HESA/NHSS 8 - Highway Electrical Registration Scheme (HERS) Highway Electrical Training Specification for details.

Unit title	VMS - Specialist Techniques - Maintenance of Specialist Variable Message Sign Equipment
Internal unit reference	HE3/14V
Regulator unit reference number	J/616/0572
Unit level	3
Unit credit value	1

Learning outcome The Learner will:	Assessment criteria The Learner can:
1. Understand the necessary equipment repair criteria to ensure correct operation and outputs as specified by the design specification	1.1. Identify hazards and risks.
	1.2. Explain fault reports and be able to confirm faults.
	1.3. List and describe the associated component parts of the equipment.
	1.4. Diagnose and rectify faults by module replacement.
	1.5. Demonstrate use of the diagnostic equipment commands.
	1.6. Test and commission equipment to specification.
	1.7. Describe how to report actions and unsafe sites to relevant personnel.

The taught content for this unit is taken from the following HESA courses:

- TVSM002.

Refer to the HESA/NHSS 8 - Highway Electrical Registration Scheme (HERS) Highway Electrical Training Specification for details.

Unit title	VMS - Specialist Techniques - Commissioning Procedures
Internal unit reference	HE3/15V
Regulator unit reference number	L/616/0573
Unit level	3
Unit credit value	1

Learning outcome The Learner will:	Assessment criteria The Learner can:
1. Understand the necessary steps and processes to ensure correct specification commissioning of VMS equipment to meet the necessary operating criteria and outputs	1.1. Identify hazards and risks.
	1.2. Verify installations are compliant with manufacturer/customer specifications.
	1.3. Verify installations are compliant with current legislative requirements.
	1.4. Report variations and unsafe conditions to site build to relevant person(s).
	1.5. Produce a defect rectification list.

The taught content for this unit is taken from the following HESA courses:

- TVSM003.

Refer to the HESA/NHSS 8 - Highway Electrical Registration Scheme (HERS) Highway Electrical Training Specification for details.

Unit title	Public Lighting - Specialist Routine Maintenance
Internal unit reference	HE3/4V
Regulator unit reference number	R/616/0574
Unit level	3
Unit credit value	1

Learning outcomes The Learner will:	Assessment criteria The Learner can:
1. Understand the structural tests that can be applied and how these are carried out	1.1. Explain the need for and types of structural testing.
	1.2. Identify the types and use of structural test equipment.
	1.3. Identify the factors which could affect the results.
	1.4. Explain how to carry out safe and systematic method for carrying out structural testing.
	1.5. Explain how to record details of work carried out and report variations.
2. Understand the purpose and methods of carrying out photometric testing of highway lighting installations on-site	2.1. Explain the need for and types of photometric testing.
	2.2. Explain how to identify the types and use of photometric test equipment.
	2.3. Identify the uncertainties/factors that could affect the results.
	2.4. Explain how to carry out safe and systematic photometric testing.
	2.5. Explain how to record details of work carried out and report variations.

The taught content for this unit is taken from the following HESA courses:

- 601
- 706
- 707.

Refer to the HESA/NHSS 8 - Highway Electrical Registration Scheme (HERS) Highway Electrical Training Specification for details.

Unit title	Public Lighting - Specialist Reactive Maintenance
Internal unit reference	HE3/5V
Regulator unit reference number	Y/616/0575
Unit level	3
Unit credit value	1

Learning outcomes The Learner will:	Assessment criteria The Learner can:
1. Understand how to identify and diagnose common faults on highway electrical systems and the subsequent repairs required	1.1. Make appropriate checks to identify the nature and location of faults.
	1.2. Explain how to check electrical supply for polarity and possible faults on the supply company equipment.
	1.3. Measure voltages and currents on the electrical supply and at the lamp terminals.
	1.4. Identify faulty lamps, control gear, switching devices and similar components.
	1.5. Explain how to isolate installation before replacing components.
	1.6. Explain how to replace faulty equipment correctly, securely and safely.
	1.7. Explain how to adhere to all safety precautions when isolating/handling DNO cut-outs.
	1.8. Explain how to record details of work carried out and report variations.
	1.9. Explain how to dispose of redundant equipment and components in a safe and approved manner.
2. Know how to identify and replace faulty components used in high mast equipment	2.1. Identify the specialist tools and equipment required.
	2.2. Explain how to lower and raise the headframe.
	2.3. Explain how to identify correct luminaire alignment and faulty components.

Learning outcomes The Learner will:	Assessment criteria The Learner can:
	2.4. Explain how to check operation and alignment of equipment.
	2.5. Explain how to replace equipment identified as probably being faulty or at end of life.
	2.6. Identify how to leave equipment in normal operating mode.
	2.7. Explain how to record details of work carried out and report variations.
	2.8. Identify how to dispose of redundant equipment and components in a safe and approved manner.

The taught content for this unit is taken from the following HESA courses:

- 701
- 708.

Refer to the HESA/NHSS 8 - Highway Electrical Registration Scheme (HERS) Highway Electrical Training Specification for details.

Unit title	Traffic Signals - Specialist Techniques - Advance Principles
Internal unit reference	HE3/6V
Regulator unit reference number	D/616/0576
Unit level	3
Unit credit value	4

Learning outcomes The Learner will:	Assessment criteria The Learner can:
1. Understand the common concepts associated with Urban Traffic Control (UTC) operations	1.1. Explain the necessary precautions before accessing cabinets.
	1.2. Identify fault reports and be able to confirm faults.
	1.3. Describe the ancillary control principles and hardware concepts.
	1.4. Use common handset command functions during investigations.
2. Understand the common concepts associated with a combination of ancillary equipment operations	2.1. Explain the necessary precautions before accessing cabinets.
	2.2. Explain fault reports and how to confirm faults.
	2.3. Describe ancillary monitoring principles and hardware concepts.
	2.4. Use common handset command functions during investigations.
3. Understand the processes to logically identify, evaluate and resolve issues associated with street equipment configurations	3.1. Explain advance traffic control modes of operation.
	3.2. Explain the principles and facilities associated with controller specification sheets.
	3.3. Demonstrate user configuration commands associated with traffic controllers.
	3.4. Identify command structure for control interrogation.

Learning outcomes The Learner will:	Assessment criteria The Learner can:
4. Understand the processes to monitor, test, commission and repair detection equipment using a range of standard and specialist test equipment	4.1. Identify equipment hardware and set to work.
	4.2. Test and commission on-site detection equipment.
	4.3. Identify and apply associated technology requirements.
	4.4. Explain how to complete routine servicing and inspections.
	4.5. Describe how to carry out fault recognition and rectification.
	4.6. Explain how to report findings and actions taken.

The taught content for this unit is taken from the following HESA courses:

- M606
- M607
- M704
- M705.

Refer to the HESA/NHSS 8 - Highway Electrical Registration Scheme (HERS) Highway Electrical Training Specification for details.

Unit title	Traffic Signals - Specialist Techniques - Inspection and Commissioning
Internal unit reference	HE3/7V
Regulator unit reference number	H/616/0577
Unit level	3
Unit credit value	3

Learning outcomes The Learner will:	Assessment criteria The Learner can:
1. Be able to carry out periodic inspections on junction controller and other associated equipment	1.1. Explain how to carry out mechanical and structural inspections.
	1.2. Carry out electrical/electronic inspections.
	1.3. Use required level of handset control.
	1.4. Test associated equipment as required.
	1.5. Make appropriate reports on findings and actions.
	1.6. Successfully upload site data as required.
2. Be able to commission traffic control, ancillary control/monitoring and associated street furniture equipment	2.1. Verify installations are compliant with manufacturer/customer specifications.
	2.2. Verify installations are compliant with current legislative requirements.
	2.3. Explain how to report variations and any unsafe conditions to site build to relevant persons.
	2.4. Produce a defect rectification list.

The taught content for this unit is taken from the following HESA courses:

- 713
- M7001.

Refer to the HESA/NHSS 8 - Highway Electrical Registration Scheme (HERS) Highway Electrical Training Specification for details.

Unit title	Traffic Signals - Specialist Techniques - Data Transmission and Ancillary Control
Internal unit reference	HE3/8V
Regulator unit reference number	K/616/0578
Unit level	3
Unit credit value	4

Learning outcomes The Learner will:	Assessment criteria The Learner can:
1. Understand transmission system fundamentals and techniques	1.1. Explain transmission system hardware concepts.
	1.2. Explain transmission concepts.
2. Understand how to apply transmission system fundamentals and techniques	2.1. Explain precautions to take before accessing cabinets.
	2.2. Explain fault reports and how to confirm faults.
	2.3. Use common handset command functions.
3. Be able to monitor, test and commission specific ancillary control equipment	3.1. Identify equipment hardware and set to work.
	3.2. Explain how to configure and commission the associated equipment.
	3.3. Explain and monitor the associated facilities.
	3.4. Use advance handset and software applications.
	3.5. Explain how to carry out electrical and mechanical fault assessment.
	3.6. Use a range of test equipment and specialist equipment.
4. Understand how to monitor, test and commission specific monitoring equipment	4.1. Explain and use advance command sets.
	4.2. Explain how to carry out commissioning configuration.
	4.3. Explain how to carry out testing and fault recognition.

Learning outcomes The Learner will:	Assessment criteria The Learner can:
	4.4. Identify and use specialist test equipment and tools.

The taught content for this unit is taken from the following HESA courses:

- M702
- M706
- M707.

Refer to the HESA/NHSS 8 - Highway Electrical Registration Scheme (HERS) Highway Electrical Training Specification for details.

Unit title	Traffic Signals - Specialist Techniques – Microprocessor Optimised Vehicle Actuation (MOVA)
Internal unit reference	HE3/9V
Regulator unit reference number	M/616/0579
Unit level	3
Unit credit value	5

Learning outcomes The Learner will:	Assessment criteria The Learner can:
1. Understand Microprocessor Optimised Vehicle Actuation (MOVA) principles, hardware and software	1.1. State and apply MOVA principles.
	1.2. Identify equipment hardware and set to work.
	1.3. Correctly use communication tools and applications.
	1.4. Correctly interpret data-set information.
2. Be able to install, inspect, test, commission and repair associated equipment	2.1. Install and commission associated equipment.
	2.2. Test and carry out inspections.
	2.3. Interpret fault messages and correctly rectify.
	2.4. Leave junction in full working order under MOVA control.

The taught content for this unit is taken from the following HESA courses:

- M708.

Refer to the HESA/NHSS 8 - Highway Electrical Registration Scheme (HERS) Highway Electrical Training Specification for details.

6 Level Descriptors

These qualifications have been accredited at Level 2 and Level 3. This means that upon achieving the qualification the Learner can be relied upon to possess the skills or knowledge described below.

Level	Knowledge Descriptor The Learner has:	Skills Descriptor The Learner can:
2	The knowledge and understanding of facts, procedures and ideas in an area of study or field of work necessary to complete well-defined tasks and address straightforward problems. The ability to interpret relevant information and ideas. Awareness of a range of information that is relevant to the area of study or work.	Select and use relevant cognitive and practical skills to complete well-defined, generally routine tasks and address straightforward problems. Identify, gather and use relevant information to inform actions. Identify how effective actions have been.
3	The factual, procedural and theoretical knowledge and understanding of a subject or field of work necessary to complete tasks and address problems that are well defined but may be complex and non-routine. The ability to interpret and evaluate relevant information and ideas. Awareness of the nature of the area of study or work. Awareness of different perspectives or approaches within the area of study or work.	Identify, select and use appropriate cognitive and practical skills, methods and procedures to address problems that are well defined but may be complex and non-routine. Use appropriate investigation to inform actions. Review how effective methods and actions have been.

7 How are these Qualifications Delivered?

In order to deliver these qualifications, you will need to be a Lantra approved Provider. Details of how to become an approved Provider are available by contacting our sales team, sales@lantra.co.uk.

Providers will also need to be a Highway Electrical Skills Academy (HESA) Approved Training Organisation. For details, please contact the Highway Electrical Association (HEA) or visit their website www.thehea.org.uk.

Approved Providers should contact our quality and standards team to register for delivery of these qualifications. It is important that Providers are approved on a per-qualification basis as we are required to ensure that we have a quality-assurance strategy in place and it also ensures that Providers receive the support they need. Upon scheme approval, you will receive the relevant documentation for delivery.

Learners must be registered via Quartzweb. Details of this process are available in the Quartzweb User Guide. Providers must submit the required information for Learner registration. Learners shall be registered on the qualification after enrolment with the Provider and before assessments take place. Failure to register Learners may mean assessments cannot take place. Sanctions may be imposed on Providers if Learners are not registered before the assessment takes place.

Learners shall complete the necessary elements of the assessment and be evaluated by the Assessor and quality assured internally by the IQA.

Providers are not required to send Learner evidence to Lantra; this should be retained by the Provider. However, Lantra reserves the right to request to see Learner work as part of the quality assurance process, so this should be retained and filed so that it can be easily located.

Where a Provider is running a qualification consistently well, Lantra may award Direct Claims Status (DCS), which enables certificates to be claimed in advance of external quality assurance taking place. Further details are available in section 7.8.4.

7.1 Delivery in the UK

The Specification for these qualifications is approved for delivery in the United Kingdom. Ofqual regulates the qualifications in England, and they have the following qualification accreditation numbers (QAN):

Lantra Awards Level 2 Certificate in Highway Electrical Work	603/2166/0
Lantra Awards Level 3 Certificate in Highway Electrical Work	603/2168/4

Regulated qualifications are subject to regular reviews to ensure their ongoing regulatory compliance and also to ensure that throughout the life cycle of the qualification the content remains relevant and current.

When the qualifications are deemed no longer suitable, for example if technology has moved on and working practices are no longer relevant, Lantra will advise Providers of a qualification end date. The end date marks the end of registrations. Any Learners registered before this date will be allowed time to complete the qualification. For these qualifications that period will stand as 2 years.

7.2 Who can Deliver these Qualifications?

Only approved Lantra Providers that are also HESA Approved Training Organisations can deliver these qualifications. For information on becoming approved please contact Lantra via sales@lantra.co.uk or call on 02476 69 69 96.

For details on HESA Approved Training Organisations, please contact the HESA or visit their website www.thehea.org.uk.

7.3 Key Safety-Critical and Technically Critical Aspects

There are both safety-critical and technically critical aspects throughout the units within these qualifications, for example highway works (including excavation or working on or near live carriageways), plant operations and working on or near electrical supplies or energised circuits.

Any demonstration of competence involving key safety-critical and technically critical aspects, examples of which are listed below (this list is not exhaustive), must be a fundamental element of the assessment of occupational competence, as determined by the industry:

- Safe isolation
- Termination and connection
- Infrastructure installation
- Inspection, testing and commissioning
- Risk assessment and safe working practices
- Identifying, diagnosing and correcting faults
- Emergency attendance (professional discussion)
- Commissioning (as applicable).

When undertaking practical activities, if the Learner is considered to be at risk of not performing the activity to the required standard or endangering the health and safety of themselves or others, the Assessor may halt the activity and use their professional judgement to restart the activity with the agreement of the Learner.

The Assessor must record the reasons and subsequent decision to halt an activity.

In order to achieve a qualification Learners shall be assessed on all learning outcomes and must achieve all learning outcomes in order to be certificated.

7.4. Assessment Components

7.4.1 Part 1 – Safety-Critical Assessment Components

a. Isolation of electrical equipment
b. Emergency works
c. Fault diagnosis
d. Inspection and testing
e. Aspects of health and safety (integrated into a-d).

7.4.2 Part 2 – Technically Critical Assessment Components (Integrated into Part 1)

a. Termination of cables and conductors
b. Application and connection of highway electrical wiring systems and equipment
c. Interpretation of technical specifications and diagrams/drawing/plans
d. Functional testing
e. Fault finding.

7.5 Provider Resources

The minimum resources you will need in place to deliver these qualifications are as follows:

- At least one occupationally competent and approved Trainer within pathway of approved scope
- At least one occupationally competent and approved Assessor (this may be the same person as the approved Trainer) within the pathway scope of approved competence
- At least one occupationally competent and approved IQA within the scope pf pathway approval
- Facilities, venue, site:
    - A room suitable for carrying out Learner inductions which includes lighting and power points
    - Suitable welfare facilities
    - Laptop and projector.
- Documentation:
    - Appropriate policies and procedures
    - *Lantra Assessment Strategy for Units and Qualifications for the Highway Electrical Sector*
    - HESA. *Highway Electrical VRQ Specification for the Installation and Maintenance of Highway Electrical Work*
    - Complaints and appeals processes and procedures.

7.6 Assessor Resources

It is the Assessor's responsibility to provide the following:

- A method of communication (i.e. mobile phone or landline)
- First aid equipment that complies with regulations
- An understanding of site emergency procedures
- Hand cleaning equipment.

7.7 Learner Resources

The Learner is required to have access to the following resources:

- Electrical testing equipment, as applicable
- Mechanically sound plant as applicable for the task(s) being assessed, which includes but is not limited to:
    - Mobile elevated work platforms (MEWP)
    - Lorry loader/vehicle-mounted crane
    - Handheld power tools for carrying out excavation work.
- Personal Protective Equipment (PPE):
    - Hard hat
    - Gloves
    - Eye protection
    - Ear defenders
    - Appropriate footwear
    - High-visibility clothing as appropriate
    - Any other site specific risk assessment requirements.

7.8 Quality Assurance and Certification

7.8.1 Quality Assurance of Assessment Decisions

These qualifications are internally assessed and externally quality assured. This means that Providers will need to appoint Trainers and Assessors to assess Learners and complete assessment paperwork. Where you have more than one Assessor you will need to carry out internal standardisation of each Assessor to ensure that they can apply the assessment criteria consistently and accurately. An IQA will need to be appointed by the Provider, and they will need to sample assessment decisions across the Assessors. It is also a requirement that regular standardisation activity is carried out with Assessors. The IQA will be responsible for putting this programme into place.

An EQA will be appointed to the provider and this person will be responsible for sample checking the Provider's IQA policy and strategy and effectiveness including the Assessors' assessment recommendations. The EQA will produce a sampling strategy which will determine the number of portfolios to be seen. This strategy involves the consideration of a number of factors such as, size of cohort and number of Assessors. The EQA will produce a sampling record detailing which work they will want to see. It is important to note that

although the EQA will view only a sample of work, they may wish to widen the sample. Therefore, all Learner work should be available for inspection.

Lantra operates both on-site and postal external quality assurance for these qualifications. You may not, therefore, always have a visit from an EQA, but a sample may be requested for despatch via post. The principle of quality assurance is the same either way. The EQA will review a sample of work and make a recommendation on the assessment decisions of the cohort as a whole.

Your EQA will contact you to make the necessary arrangements regarding the visit (date, venue etc.) or request the despatch of a sample of work.

Where the EQA is in agreement this decision will be communicated to Lantra and certificate claims will be processed. Where the EQA is not in agreement the reasons will be communicated to the provider with supportive feedback to help with future assessment decisions. This may result in the need for Learners to retake the assessment.

Occasionally as part of Lantra's ongoing quality assurance strategy an EQA may be accompanied by either Lantra staff or another EQA.

Where DCS is in place Providers will be able to claim certificates before quality assurance has taken place.

Lantra will support Providers when requirements are not met by developing action plans, providing recommendations and, where required, implementing sanctions.

7.8.2 Claiming Certification

Once a Learner has completed the assessment requirements and quality assurance has taken place certification can be claimed.

Providers need to either submit a completed Certificate Claim Form or make a claim via QuartzWeb, which allows Lantra to process the certificates following quality assurance approval.

Following certificate claim, certificates will be issued by Lantra for Providers to distribute to individual Learners.

Where DCS is in place, the certificates will be issued prior to quality assurance taking place (see 7.8.4).

7.8.3 Replacement Certification

If a Learner loses the original certificate Lantra can issue a replacement. The Learner will need to provide proof of identity (for example passport or driving licence) and the details of the Provider they were registered with. Lantra will check all claims for replacement certificates against the original Certificate Claim Form. The Provider may be contacted for authentication. The certificate will be marked as a replacement. A fee is payable for replacement certificates. Please contact Lantra for the current fee.

7.8.4 Direct Claims Status (DCS)

DCS enables Providers to claim certification directly before external quality assurance has taken place. A claim for DCS can only be made after an EQA has conducted at least two visits, which may be approximately six months following approval to deliver the qualifications and enough Learners have been progressed by the Provider.

Where an EQA decides a programme is running consistently successfully and the Provider has effective internal controls, recommendation may be made to award the Provider DCS. Where this is granted the Provider must retain all assessment evidence until the EQA has quality assured the work as meeting national standards. DCS will be withdrawn if access is not given to completed Learners' evidence where certificates have already been claimed.

Providers must operate a system which ensures all Trainers and Assessors train and assess to the required standard. The IQA shall observe each Trainer and Assessor, retaining evidence of observations which must be made available during EQA visits and review portfolios and the evidence therein to ensure a consistent level of assessment to the national standards. The EQA may wish to sample the process and observe Assessors. If the EQA is not confident about the way in which the Provider is operating they may recommend the suspension or withdrawal of DCS.

DCS does not mean that all claims are certificated without further quality assurance checks. Quality assurance of claims will still take place, and where this suggests that certificates have been incorrectly issued may lead to them being revoked. Providers are required to make all reasonable effort to recover certificates which have been revoked.

Should a Provider be imposed with a Level 2 sanction or above, DCS will automatically be removed. Further information on sanctions can be found in the Provider Handbook.

7.9 Enquiries About Results and Appeals

Lantra has an Enquiries about Results Policy and Appeals Procedure which can be used when a Learner or Provider has reason to believe there has been an error in either the administrative processes leading to an incorrect qualification award or there has been an issue in the assessment of the Learner. Fees payable for enquiries about results will be refunded in full if the enquiry is upheld or if a Learner's results are changed as a result of an enquiry.

Appeals can be made following the outcome of an enquiry about results if the Learner/Provider remains unhappy with the outcome or has further grounds to query the decision. Please note that appeals will not be accepted before a paid result enquiry has been conducted.

Providers must ensure that Learner consent is obtained before an enquiry about a result is requested. Learners must be informed that assessment outcomes can change both positively and negatively.

Please refer to the Provider Handbook for further details.

7.10 Malpractice and Maladministration

Where malpractice is suspected, especially where there is doubt on the integrity of the assessment process, Lantra will immediately suspend further certification claims whilst an investigation is carried out. The regulatory authorities will be notified of any investigations and their outcome.

The claimant will be required to provide information about the suspected malpractice and the circumstances surrounding the matter. Malpractice, if found, may result in sanctions being imposed on the Provider, certificates being revoked or even Providers being barred from Lantra membership and reported to regulatory authorities.

Maladministration is linked to malpractice and can result in a malpractice investigation being launched. Maladministration could impact on the credibility of the assessment taking place or the outcomes achieved; for example, in the event of a failure to investigate suspected malpractice when asked to do so by Lantra.

Please refer to the Lantra Malpractice and Maladministration Policy for further details.

7.11 Recognition of Prior Learning (RPL)

RPL is defined as ‘A method of assessment that considers whether a Learner can demonstrate that they can meet the assessment requirements for a qualification through knowledge, understanding or skills they already possess and do not need to develop through a course of learning.’

It is important that Providers make it clear to Learners that the RPL process is associated with how the Learner has acquired the required knowledge, understanding or skills; it does not mean the Learner will be exempt from the assessment.

It is the responsibility of the Assessor to decide if evidence provided by the Learner is valid, reliable and current, and also meets the relevant assessment criteria. Where the Assessor decides that the RPL does meet the assessment criteria, this must be clearly signposted in the tracking documentation.

It is recommended that Providers refer to the Provider Handbook for further information on the implementation of RPL.

7.12 Safeguarding — Young People and Vulnerable Adults

These qualifications can be offered to Learners in the 16-19 age group, as well as Learners aged 19+. The Health and Safety at Work etc. Act 1974 and associated legislation requires employers to ensure the health, safety and welfare at work of their employees and for Providers to safeguard Learners. Young people under the age of 18, and vulnerable adults can be exposed to risk when using work equipment due to immaturity, lack of experience or lack of awareness of existing or potential risks. Therefore, young people and vulnerable adults may need closer supervision.

For more information about young people at work, see the Management of Health and Safety at Work Regulations 1999.

7.13 Additional Requirements and Reasonable Adjustments

Providers shall make appropriate arrangements, including reasonable adjustments. These are detailed in the Equality and Diversity Policy within the Provider Handbook, to ensure that Learners with additional needs can access assessment wherever possible. The Equality and Diversity Policy covers alternative assessment arrangements which can be made for Learners.

Reasonable adjustments must not, however, result in a change to the learning outcomes and assessment criteria. For example, within this qualification Learners must understand product information, which includes being able to understand information written in English.

A Provider must apply to Lantra for reasonable adjustments using the **Reasonable Adjustments Request Form**. Lantra recommends reasonable adjustment requests be submitted no later than six weeks prior to any assessment taking place, to allow a decision on their suitability to be made before the assessment. However, Lantra recognises that this may not always be possible, and we will do our best to process requests received after this point.

Please note that no reasonable adjustment (other than those on the specified list) should be implemented without the prior approval of Lantra. Where reasonable adjustments appear on the specified list these should be noted on the Learner's assessment record.

8 What does a Provider need to do?

8.1 Management Support

Experience has shown that qualification programmes run more effectively when given support by senior management. This can be achieved by appointing a person from the senior management team or a designated Qualification Manager and ensuring they are given the authority to monitor the quality management systems for the programme and to implement any required changes. This role is separate from the required role of an IQA.

Management support can be demonstrated by ensuring that appropriate team members are allocated to the programme and given sufficient time and resources to carry out their roles effectively.

8.2 Provider Records

Providers shall retain Learner records, which include the details listed below. Providers may already have their own systems which can be used to store records. Lantra does not prescribe the format in which records are kept.

Provider records must include:

- data about individual learners, including any special needs e.g. access arrangements
- assessment and action plans
- Learner registration
- achievement of units
- feedback given to Learners by Assessors
- Learners' evidence sampled by IQAs
- feedback given to Assessors by IQAs
- Learner induction plan
- action plans provided by the EQA.

All records must be stored securely to avoid being falsified or fraudulent claims being made. All assessment records must be retained by the Provider for at least **three years** after the Learner has completed the assessment. If the programme is subject to an EQA visit/ approval sign off, then the records should be retained for three years after this date. It is the responsibility of the Provider to ensure that data is cleansed at the appropriate time.

There is no prescribed format for these records and Providers may wish to incorporate them into documentation they already maintain within their own organisation. If the Provider already works to quality management systems such as the Scottish Quality Management System (SQMS), the ISO 9001 series or is required to maintain records for government-funded training schemes, that documentation should provide an adequate basis for Provider records.

Providers may also need to adhere to separate requirements, where appropriate, with regard to the retention of records such as funding applications. Please refer to the specific requirements of the funding agency.

8.3 Support for Learners

Learners will need to follow an induction programme when enrolled on the qualification. This shall be designed around a particular element or unit of the qualification so that they become familiar with the way the qualification operates.

As part of the Learner's induction onto these qualifications, Providers shall have in place an induction plan for each Learner. This will include, as a minimum, processes in place to review and document during the induction:

- Learner suitability and risk review
- Learner underpinning knowledge, Accredited Prior Achievement (APA) and RPL
- Review of Learner HERS portfolio to determine appropriate qualification units
- Review of Learner Curriculum Vitae (CV) (as supplied by the Learner's organisation)
- Confirmation of the qualification pathway(s)/sub-sector(s), size, level and units to be undertaken by the Learner
- One-to-one discussion to determine Learner suitability and concerns
- Reasonable adjustment requirements
- Verification of identity (HERS card)
- An explanation of the process to achieve the relevant NVQ and what is expected of them
- Complaints and Appeals Procedure and process
- Start of the personal action plan and any appropriate feedback from the induction
- Photo evidence (if deemed appropriate).

Many Learners will already have pre-existing skills and knowledge. A system shall be introduced to identify these skills and how evidence from prior achievements can be recorded — see section 7.11 Recognition of prior learning.

Throughout the programme Assessors shall provide feedback to Learners on how they are progressing through the qualification to ensure that on the day of any assessment they are suitably prepared for the requirements of the on-site assessment. Feedback should be positive, constructive, recorded and used for future planning.

Some Providers will have staff working in education support; in others, Assessors may offer this support. It is important for each Learner to have appropriate guidance and be directed towards additional information as required. Guidance on career opportunities may also be appropriate.

Learners with particular characteristics may need additional support from the Provider. Refer to Lantra's Equality and Diversity Policy for further information relating to reasonable adjustments/special considerations. Learners with certain protected characteristics should not be discriminated against or prohibited from assessment where adjustments can be made to the assessment evidence requirements which would allow them to demonstrate competence or knowledge in different ways.

Learners must be informed when they have been registered for a qualification. It is also a regulatory requirement that Lantra be informed if a Learner later withdraws from a qualification. Providers must also ensure that Learners are informed when they have been withdrawn from a qualification for any reason and retain evidence of this.

Learners will not be recognised by Lantra until they have been registered and Lantra will have no obligation to the Learners if there is a problem with them completing the qualification, such as in the case that the Provider ceases operations.

If for any reason a Provider is not intending to renew their membership whilst they still have uncertified Learners registered on a qualification, regulatory requirements stipulate that Learner interests must be maintained. The Provider may choose to transfer Learners to another awarding organisation or the Provider will still be required to complete the assessment of Learners with Lantra and pay any fees due for quality assurance or certification.

9 Administration and Other Important Information

9.1 Administration Process for Registration and Certification

The Quartzweb User Guide contains instructions on how to register Learners.

Learners may transfer registration from one unit/qualification to another provided they are both offered by Lantra. This will incur an administration fee. If the registration fee for the new qualification is higher than for the previous one, Providers will be invoiced for the difference. No refunds will be made if the registration fee for the new qualification is lower. Learners transferring to a different Provider must re-register with the new Provider. Lantra may need to charge the Learner's new Provider an administration fee.

Learners must be informed when they have been registered for a qualification.

9.1.1 Registering the Learner

Learners **must** be registered for a qualification before an assessment can take place. Please refer to the Quartzweb User Guide for details on how to register Learners.

Each Learner must give their surname/family name, first name, date of birth and postcode. The date of birth is important to distinguish between Learners with the same name. Data on gender, ethnic origin and whether any reasonable adjustments have been requested whilst not mandatory are beneficial so that achievements can be monitored for equal opportunities purposes and to ensure fair access to training and qualifications is achieved.

9.1.2 Certificate Claims

Certificates can only be claimed for Learners who are registered on Quartzweb. All certificate claims are checked against Provider approval records and Learner registration records (unless DCS is in place). Certificates will not be issued to Learners who are not registered before any assessment takes place.

The Learner name will appear on the certificate in the same way as it is entered on Quartzweb.

Providers must issue the certificate to the Learner as soon as is practically possible, it is not permissible to withhold the distribution of the certificate where there is a dispute over any fees payable.

9.1.3 Regulatory Authorities

Occasionally Ofqual (the qualification regulator) may visit Providers and require access to premises, meetings, Learner assessment records, internal verification records, documents, data, Learners and staff. If Providers refuse access, Lantra will be required to suspend all future certificate claims until the requirements of the regulatory visit have been satisfied.

9.2 Assessment Strategy

For guidance refer to the *Lantra Assessment Strategy for Units and Qualifications for the Highway Electrical Sector*.

9.3 Funding

Approved qualifications may be eligible for funding from either the Education and Skills Funding Agency (ESFA) or equivalent bodies in Wales and Northern Ireland. The qualification is listed on The Ofqual Register of Regulated Qualifications and the Learning Records Service (LRS). Funding may be available to organisations which meet the requirements of the relevant agency.

In order for the funding to be linked to the Learner, a Unique Learner Number (ULN) must be provided. This should be entered in the ULN field when registering the Learner on Quartzweb. For information on how to obtain ULNs for your Learners, please refer to the LRS guidance www.gov.uk/education/learning-records-service-lrs.

9.4 Feedback, Compliments and Complaints

Lantra recognises that from time to time Providers, Learners, Assessors and other personnel may have reason to provide feedback on a process, or have grounds for a complaint. We would also welcome compliments when aspects of our courses have been well received so that we can seek to implement best practice across our suite of products. The Lantra Feedback, Compliments and Complaints Procedure is published on the Lantra Awards' website.

Appendix 1 – Glossary of Terms

Knowledge	Factual information that can be recalled as required. Individual can (for example) 'identify' and/or 'describe' key information relevant to the subject area.
Understanding	The application and extension of knowledge allowing organised thought, the generation of original ideas and critical thinking. Individual can (for example) 'explain', 'analyse' and/or 'evaluate'.
Skill	The application of knowledge and/or understanding in a practical context demonstrating practical competency. Individual can (for example) 'operate', 'use' and/or 'carry out'.
Learning outcome	How the Learner will be changed by the learning/assessment process. That which the Learner will, due to learning experiences, newly know, understand or be able to do.
Assessment criteria	Discrete criteria which holistically deliver on the promised objective of the qualification and which must all be evidenced to a unified (and/or graded) standard.
Qualification objective	A succinct summation of the overarching development of the Learner in terms of tangible work or further developmental opportunities available as a result of achieving this qualification.
Qualification aim	A succinct summation of why this qualification is of value to the Learner (without reference to assessment).
Transferable	Knowledge, understanding or skills which can be applied beyond the context in which they were taught to benefit the Learner in different job roles, industries, contexts and/or personal situations.
Guided learning hours (GLH)	Approximate number of hours under immediate guidance or supervision of a lecturer, supervisor, tutor or teacher.
Total qualification time (TQT)	Guided learning hours + directed study + assessment.
Arrangements for reasonable adjustments	Adjustments made to an assessment for a qualification so as to enable a Learner with additional requirements to demonstrate his/her attainment to the level required.

Arrangements for special consideration	Special consideration might be given to a Learner who has temporarily experienced: • An illness or injury • Some other event outside of the Learner's control which has had a material effect on the Learner's ability to take an assessment or demonstrate his/her attainment.
Recognition of prior learning	A method of assessment that considers whether a Learner can demonstrate that they meet the assessment requirements for a unit through knowledge, understanding or skills they already possess and do not need to develop through a course of learning.

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LANTRA AWARDS

Raising skills | Inspiring growth

Lantra House, Stoneleigh Park,
Coventry, CV8 2LG
t +44 (0)2476 696996
e sales@lantra.co.uk
w www.lantra.co.uk

Registered no: 2823181
Charity no: 1022991
Scottish charity no: SC039039
VAT no: 585 3815 08

bsi ISO 9001 Quality Management Systems CERTIFIED

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