



# QUALIFICATION SPECIFICATION

**ECITB Diploma in Maintaining Plant and Systems –  
Electrical at SCQF Level 7**

**SQA Accreditation group award number: R834 04**

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# 1. Introduction

## Objective and overview

The Engineering Construction Industry Training Board (ECITB) is the employer-led skills, standards, and qualifications body for the development of the engineering construction workforce of Great Britain. An arms-length body of the UK Government, the ECITB reports directly to the Department for Education.

The ECITB Awarding Body for accredited engineering construction qualifications is part of the industry training board. Our qualifications certify knowledge and competence across craft and technical disciplines. They improve quality and standards for the industry, helping engineering construction companies to stay competitive.

This document is for use by Approved Centres and their candidates. It is also used by ECITB's External Quality Assurers. It may also be of interest to employers and training providers.

The ECITB Diploma in Maintaining Plant and Systems – Electrical at SCQF Level 7 is a work-based qualification based on the National Occupational Standards (NOS) for the Engineering Construction industry. The qualification comprises both knowledge and competence. NOS are developed by employers and professional bodies in conjunction with the ECITB Standard Setting Organisation and describe what employers mean by occupational competence within a particular job role.

The objectives of this qualification are to:

Prepare candidates for employment in the maintaining plant and systems electrical industry.

Support candidates working in the maintaining of plant and systems electrical industry.

Enable candidates to progress to higher levels, including opportunities to move to supervisory and managerial roles.

## Maintenance Technician Occupations

Maintenance technicians maintain the safety, integrity and effective operation of plant and systems in a wide range of industries of national importance including power generation and water infrastructure, petrochemical, oil and gas, and steel, food and drink processing.

Maintenance technicians are responsible for the assembly, installation, maintenance, inspection, repair and testing of a wide range of plant and associated components. They diagnose the causes of malfunctions or failures of operational equipment in a prompt and efficient manner, resolving problems quickly. They also undertake preventative maintenance in order to prevent failure. Maintenance technicians interpret maintenance schedules, specifications, engineering drawings and diagrams and understand on-site hazards and the statutory health, safety and environmental requirements of maintaining plant and systems.

Maintenance technicians are overseen by a supervisor. They are responsible for the quality of their own work, possibly that of others, and for ensuring work is completed safely and effectively, following procedures and completing essential documentation at all times. They work on various types of plant and systems depending on their company sector and typically specialise in one of the following: electrical, instrumentation and control or mechanical.

## Entry requirements

There are no mandatory entry requirements for this qualification. The qualification is open to any candidate who the Approved Centre believes can reach the assessment requirements set out within this document. A candidate must have a sound grasp of the English language

and mathematics to be able to follow instructions as well as complete the learning and assessment required for this qualification. The Approved Centre will work with prospective candidates and, where appropriate, employers, to determine a candidate's suitability for the qualification.

### Language

This qualification is available in English only. For candidates who use English as a second language, an Approved Centre must satisfy itself prior to registering a candidate that the candidate's level of English is sufficient to be able to access the learning and undertake the assessment at the appropriate level, and to be able to interact with others and work safely.

### Achievement

This qualification consists of 13 mandatory units. A candidate must successfully meet the requirements in each of the units in order to attain this qualification. This document details the learning outcomes and assessment criteria that a candidate must meet in order to demonstrate the acquisition of the knowledge and skills needed to be awarded an ECITB Diploma in Maintaining Plant and Systems – Electrical at SCQF Level 7. Mandatory observation of the candidate by an Approved Centre assessor is required to achieve this qualification.

The contents of each unit within the qualification interrelate and the AB issues credit certificates for completion of stand-alone units, on request from the Approved Centre. The qualification contains the following units:

<b>Unit Reference Number</b>	<b>SQA Accreditation unit number</b>	<b>Unit Title</b>	<b>Level</b>	<b>Credit</b>
ECITBCO-S1	UT09 04	Contribute to effective working relationships in engineering construction	5	6
ECITBCO-S2	UT55 04	Work safely and minimise risk in engineering construction	6	10
ECITBCO-S4	UT56 04	Work with environmental sustainability in mind	6	6
ECITBCO-S5	UT23 04	Interpret and follow documentation and procedures	6	6
ECITBCO-S6	UT54 04	Use digital technology and information effectively and securely	5	2
MPSE-01S	UT15 04	Position and install electrical equipment and systems in engineering construction	6	9
MPSE-02S	UT38 04	Disassemble electrical equipment and systems in engineering construction	7	8
MPSE-03S	UT41 04	Carry out preventative and corrective maintenance on electrical equipment and systems in engineering construction plant	7	12
MPSE-05S	US97 04	Remove and replace electrical components from equipment and systems in engineering construction	6	8

MPSE-09S	UT30 04	Diagnose faults in electrical equipment and systems in engineering construction plant and determine the potential for viability of repair	7	16
MPSE-10S	UT04 04	Assemble electrical equipment and systems in engineering construction	7	10
MPSE-011S	UT49 04	Repair electrical equipment and systems in engineering construction plant	7	9
MPSE-014S	UT12 04	Test electrical equipment and systems in engineering construction plant	8	9

### Credit and level

Credit is a value attached to each unit and each qualification, based on the amount of time it would take the average candidate to achieve and demonstrate the learning outcomes of a qualification. In practice, individual candidate requirements and individual delivery methods mean there will be variation in the actual time taken to complete a qualification. Credit are estimates, based on consultation with industry practitioners, supervisors, and assessors. One credit point is equivalent to 10 hours. Credit includes:

- Formal input, e.g. contact time with tutor, acquisition of knowledge/understanding. Off the job time.
- Additional activities, e.g. developing practice, reflection, research/study time. On the job time.
- Assessment, e.g. planning, completion of assessment tasks.

This qualification has 111 credit points.

The credit points allow candidates, learning providers and employers to compare the size of different qualifications.

In some instances, it may be possible to transfer SCQF credit points to and from other learning programmes This will enable a candidate to include evidence of prior knowledge and competence and to ensure they do not repeat learning previously undertaken.

Universities, colleges, SQA Accreditation and other awarding bodies decide how many of the credit points received from previous learning can be transferred into their programmes. In all cases of credit transfer, it would be the decision of the accepting learning provider as to how many credit points could be transferred. Please refer to the *ECITB Recognition of Prior Learning Policy and Procedures*.

Time limits on the process of credit accumulation or exemptions are set out for each unit within the qualification structure.

This qualification is at SCQF Level 7. The SCQF descriptor for Level 7 is:

<b>Characteristic 1:</b>
<b>Knowledge and understanding</b>
Demonstrate and/or work with:

<p>An appreciation of the body of knowledge that constitutes a subject/discipline/sector.</p> <p>A range of knowledge, facts, theories, ideas, properties, materials, terminology, practices, and techniques about, and associated with, a subject/discipline/sector.</p> <p>Relating the subject/discipline/sector to a range of practical and/or commonplace applications.</p>
<p><b>Characteristic 2:</b></p> <p><b>Practice: Applied knowledge, skills and understanding</b></p>
<p>Apply knowledge, skills and understanding:</p> <p>In known, practical contexts.</p> <p>In using some of the basic, routine practices, techniques and/or materials associated with the subject/discipline/sector.</p> <p>In exercising these in routine contexts that may have non-routine elements.</p> <p>In planning how skills will be used to address set situations and/or problems and adapt these as necessary.</p>
<p><b>Characteristic 3:</b></p> <p><b>Generic cognitive skills</b></p>
<p>Obtain, organise, and use factual, theoretical and/or hypothetical information in problem solving.</p> <p>Make generalisations and predictions.</p> <p>Draw conclusions and suggest solutions.</p>
<p><b>Characteristic 4:</b></p> <p><b>Communication, ICT, and numeracy skills</b></p>
<p>Use a wide range of skills, for example:</p> <p>Produce and respond to detailed and relatively complex written and oral communication in both familiar and unfamiliar contexts.</p> <p>Select and use standard ICT applications to process, obtain and combine information.</p> <p>Use a wide range of numerical and graphical data in routine contexts which may have non-routine elements.</p>
<p><b>Characteristic 5:</b></p> <p><b>Autonomy, accountability and working with others</b></p>
<p>Take responsibility for carrying out a range of activities where the overall goal is clear, under non-directive supervision.</p> <p>Exercise some supervisory responsibility for the work of others and lead established teams in the implementation of routine work within a defined and supervised structure.</p> <p>Manage limited resources within defined and supervised areas of work.</p> <p>Take account of roles and responsibilities related to the tasks being carried out and take a significant role in the evaluation of work and the improvement of practices and processes.</p>

## **Equity, diversity and inclusion**

We have designed this qualification and its assessments to enable fair access to all candidates as far as reasonably possible, while taking industry requirements into consideration, e.g. health and safety.

You may wish to refer to our *Equal Opportunities Policy* and the *Reasonable Adjustments and Special Considerations Policy and Procedure* that are published on the ECITB website.

If you would like to discuss arrangements for reasonable adjustments, please contact us at [qualifications@ecitb.org.uk](mailto:qualifications@ecitb.org.uk).

## **Progression**

Completing this qualification can lead to a range of further career options. Those who wish to stay in engineering construction can develop their skills further, or progress through supervision to senior positions such as Construction Manager. Individuals can progress through additional qualifications and apprenticeships or into supporting engineering functions such as technical leadership, procurement, quality assurance, project management or project controls.

## 2. Qualification units and scope of assessment

### 2.1 Unit features

This qualification consists of 13 mandatory units. Candidates must attain all the learning outcomes in each unit to gain a Pass in the qualification. Candidates attain a learning outcome by meeting each of the assessment criteria linked to the learning outcome at the appropriate standard. The units in this specification show the assessment criteria that a candidate must meet to attain the learning outcomes.

The qualification grade available is Pass.

Each unit has the following sections:

#### **ECITB unit number**

The unique unit code that identifies the unit on ECITB's system.

#### **SQA Accreditation unit number**

The unique unit code that the regulator (SQA Accreditation) uses to identify the unit.

#### **Unit title**

The name of the unit, which reflects the content of the unit.

#### **SCQF level**

These levels measure the degree of challenge posed by the qualification compared to other qualifications. The levels are determined by using the SCQF and EQF level descriptors.

#### **Credit value**

The credit value represents the learning time being defined as the time taken by candidates at the level of the unit, on average, to complete the learning outcomes of the unit to the standard determined by the assessment criteria.

#### **Unit aim**

A summary of what the unit enables the candidate to do.

#### **Learning outcomes**

What a candidate will know, understand and/or be able to do upon attainment of the unit. Each learning outcome starts with the letters LO.

#### **Assessment criteria**

The requirements a candidate is expected to meet to demonstrate the attainment of the related learning outcome. Each assessment criterion starts with the letter K if it relates to knowledge or understanding and with the letter S if it relates to skills. Each assessment criterion starts with a command verb which instructs the candidate in what to do.

#### **Assessment**

This section outlines how the unit will be assessed.

#### **Standards**

The National Occupational Standard(s) that the unit is mapped to.

### 2.2 Underpinning knowledge and skills

Units ECITBCO-S1 to ECITBCO-S6 detail the factual, procedural and theoretical knowledge that the candidate must acquire and also demonstrate on plant, equipment and systems of their selected discipline:

- Relevant national and industry health, safety and environmental standards and legislation and those relevant to the specific disciplines, as appropriate.
- Site safety responsibilities, own and others including: first aid procedures, evacuation procedures and contingency reporting.
- Types and effects of hazards, safety assessment methods and techniques and how to minimise associated risks.
- Relationships: importance of understanding of work relationship problems.
- Lines of communication, reporting lines and levels of responsibility in the workplace.



- The importance of ethical working and the sustainable use of resources including: codes of conduct, minimising the impact of work on the environment.
- The importance of questioning and demonstrating initiative in day-to-day problem solving.
- Procedures and related documentation and responsibility for reporting and following procedures.
- Preparation and reinstatement of the work area including: preparing, checking and handling material; types of equipment and the related care and control procedures; storing and disposing of material; handing over plant and equipment.

### 2.3 Plant and systems specific knowledge and skills

Units MPSE-01S to MPSE-14S are discipline specific and the candidate must demonstrate their application of knowledge and skills on structures, plant and equipment.

The candidate is required to effectively demonstrate the theoretical, factual and procedural knowledge and practical skills of the following units that comprise the qualification in accordance with the stated assessment criteria and scope of assessment provided in this document:

ECITBCO-S1	Contribute to effective working relationships in engineering construction
ECITBCO-S2	Work safely and minimise risk in engineering construction
ECITBCO-S4	Work with environmental sustainability in mind
ECITBCO-S5	Interpret and follow documentation and procedures
ECITBCO-S6	Use digital technology and information effectively and securely
MPSE-01S	Position and install electrical equipment and systems in engineering construction
MPSE-02S	Disassemble electrical equipment and systems in engineering construction
MPSE-03S	Carry out preventative and corrective maintenance on electrical equipment and systems in engineering construction plant
MPSE-05S	Remove and replace electrical components from equipment and systems in engineering construction
MPSE-09S	Diagnose faults in electrical equipment and systems in engineering construction plant and determine the potential for viability of repair
MPSE-10S	Assemble electrical equipment and systems in engineering construction
MPSE-011S	Repair electrical equipment and systems in engineering construction plant
MPSE-014S	Test electrical equipment and systems in engineering construction plant

### 2.4 Further information

For further information either visit the ECITB website or contact the ECITB Awarding Body:

Office F15, Kings House Business Centre, Home Park Estate  
 Station Road, Kings Langley, WD4 8LZ  
 Email: [Qualifications@ecitb.org.uk](mailto:Qualifications@ecitb.org.uk)  
 Website: [www.ecitb.org.uk](http://www.ecitb.org.uk)

## 2.5 Units

<b>ECITB unit:</b>	<b>ECITBCO-S1 Contribute to effective working relationships in engineering construction</b>
<b>SQA Accreditation unit code:</b> UT09 04	
<b>SCQF level:</b> 5 <b>Credit value:</b> 6	
<p><b>Unit purpose and aim:</b> This unit has been designed to assess learner competence in being able to:</p> <ol style="list-style-type: none"> <li>1. Establish and maintain productive working relationships</li> <li>2. Deal with disagreements in an amicable and constructive way so that good relationships are maintained</li> <li>3. Keep others informed about work plans or activities which affect them</li> <li>4. Seek assistance from others in a polite and courteous way without causing undue disruption to normal work activities</li> <li>5. Respond in a timely and positive way when others ask for help or information</li> </ol>	
<p><b>Details of the relationship between the unit and relevant National Occupational Standards or other professional standards or curricula (if appropriate)</b></p> <p>Derived from ECITB/ECS 11.04 (CO 1)</p>	

<b>Learning outcomes</b>	<b>Assessment criteria</b>
The candidate will:	The candidate can:
LO1 Understand lines of communication and responsibilities	K1.1 Explain the individual's responsibilities and the responsibilities of others within the work location
	K1.2 Describe the lines of communication that exist within the individual's working environment and explain the agreed procedure for passing information

<b>Learning outcomes</b>	<b>Assessment criteria</b>
The candidate will:	The candidate can:
LO2 Understand the importance of creating and maintaining working relationships	K2.1 Describe the individual's responsibilities for creating and maintaining working relationships and explain why it is important to do so
LO3 Understand problems affecting relationships	K3.1 Describe different problems that can affect relationships, and the actions that can be taken to deal with specific difficulties
LO4 Establish and maintain productive working relationships	S4.1 Develop working relationships with different people in the work environment such as: those for whom they are responsible, those to whom they are responsible, clients, colleagues, other tradespersons, suppliers, security/safety personnel
LO5 Deal with disagreements in an amicable and constructive way so that effective relationships are maintained	S5.1 Respond in a positive way when others ask for help or information
	S5.2 Treat everyone fairly and with respect and support the creation of a welcoming and inclusive environment for everyone
	S5.3 Maintain effective relationships by: <ul style="list-style-type: none"> <li>a. Resolving disagreements in a constructive and objective manner</li> <li>b. Escalating if needed</li> <li>c. Reporting, in accordance with procedures</li> </ul>
LO6 Seek assistance from others in a polite and courteous way without causing undue disruption to normal working activities	S6.1 Maintain effective relationships by seeking assistance from others in a polite and courteous manner
LO7 Respond in a timely and positive way when others ask for help or information	S7.1 Follow relevant work or professional codes of conduct, as appropriate for their role
	S7.2 Requests for help and information to identify exactly what is required
	S7.3 Resolve problems within the limits of their authority as they arise

<b>Assessment requirements or guidance specified by a sector regulatory body (if appropriate)</b>	<p>Assessment of this unit will be by occupationally competent assessors approved by an awarding body. They will gather sufficient evidence of competence from work-based activities on suitable engineering construction industry sites or realistic workplace environment. Such methods may include discussions about product evidence and questioning.</p> <p>Assessment criteria may be satisfied by observation, questioning, expert witness testimony, professional discussion or any other approved method.</p> <p>Further guidance on this ECITB unit can be found in the SQA Accreditation ECITB Assessment Strategy document.</p>
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<b>ECITB unit:</b>	<b>ECITBCO-S2 Work safely and minimise risk in engineering construction</b>
<b>SQA Accreditation unit code:</b> UT55 04	
<b>SCQF level:</b> 6 <b>Credit value:</b> 10	
<p><b>Unit purpose and aim:</b> This unit has been designed to assess learner competence in being able to:</p> <ol style="list-style-type: none"> <li>1. Work safely at all times, complying with health and safety and other relevant regulations and guidelines</li> <li>2. Call for expert help in the event of contingencies occurring, using warning systems as appropriate</li> <li>3. Take prompt and appropriate action to minimise risk of personal and third-party injury as a first priority and then damage to property and equipment</li> <li>4. Follow shutdown and evacuation procedures promptly and correctly</li> <li>5. Deal safely with dangers that can be contained using appropriate equipment and materials, in accordance with organisational policy and procedures</li> </ol> <p>In the context of this unit, responsibility is limited to working within an overall risk control strategy which has been developed by safety specialists and which includes detailed criteria for identifying risks together with clearly defined procedures for action which must be followed. In some cases, the learner may be expected to refer to others for final authorisations, even though they remain responsible for identifying and implementing decisions.</p>	
<p><b>Details of the relationship between the unit and relevant National Occupational Standards or other professional standards or curricula (if appropriate)</b></p> <p>Derived from ECITB/ECRS 10.06 (CO 2), NOS ECITB (CO 4)</p>	

<b>Learning outcomes</b>	<b>Assessment criteria</b>
The candidate will:	The candidate can:
	K1.1 Explain the requirements of health and safety legislation

<b>Learning outcomes</b> The candidate will:	<b>Assessment criteria</b> The candidate can:
LO1 Understand health and safety legislation, regulations and safe working practices and procedures	K1.2 Explain the consequences for employers and employees of not fulfilling their legal health and safety responsibilities
	K1.3 Explain the purpose and nature of risk assessments, method statements, and permit to work systems, and the relevance of local procedures and guidance notes
	K1.4 Manage hazards and the associated risk and their responsibility in relation to dealing with and reporting hazards including what risks there are in relation to health and safety
LO2 Understand personal site safety responsibilities	K2.1 Demonstrate how to recognise health and safety training needs, the procedure for requesting training and who to ask for help in understanding the work instructions
	K2.2 Explain how to get information relating to the safe use of equipment and how to ensure the equipment is used safely
	K2.3 Demonstrate how to recognise when personal protective equipment should be used and how to select and use the correct equipment for the work to be undertaken
	K2.4 Explain different types of vibration injuries and explain how they can be prevented
	K2.5 Explain the importance of personal behaviour in maintaining workplace standards
	K2.6 Demonstrate the checks which are needed to make sure that portable electrical appliances are safe to use
	K2.7 Demonstrate what a safe system for electrical isolation should include and why low voltage is generally safer in relation to health and safety
	K2.8 Explain the risks from overhead cables and how to control them
	K2.9 Demonstrate what must be done when carrying hazardous substances in vehicles

<b>Learning outcomes</b>	<b>Assessment criteria</b>
The candidate will:	The candidate can:
	K2.10 Explain where asbestos is likely to be found, what should be done if it is thought to have been found and how it is a risk to health
LO3 Understand others' site safety responsibilities	K3.1 Explain who is responsible for ensuring that equipment is checked and safe to use
	K3.2 Explain the need for health and safety training for themselves and others in a workplace and the procedures for requesting training
	K3.3 Explain the consequences for employers and employees of not fulfilling their legal health and safety responsibilities
LO4 Demonstrate first aid procedures	S4.1 Follow relevant first aid procedures that typically relate to the workplace
	S4.2 Demonstrate where information, competent assistance and local first aid facilities can be obtained
LO5 Understand and follow evacuation procedures	S5.1 Follow relevant evacuation procedures that typically apply in the workplace
	S5.2 Demonstrate where information and competent assistance for evacuation can be obtained
LO6 Follow contingency reporting procedures	S6.1 Complete contingency reporting documentation following relevant systems to workplace activities
LO7 Follow appropriate reporting lines and procedures	S7.1 Comply with the various reporting lines and procedures that apply in the working environment

<b>Assessment requirements or guidance specified by a sector regulatory body (if appropriate)</b>	Assessment of this unit will be by occupationally competent assessors approved by an awarding body. They will gather sufficient evidence of competence from discussions with candidates about work-based activities on suitable engineering construction industry sites
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or realistic workplace environment. Such methods may include discussions about product evidence and questioning.

Assessment criteria may be satisfied by observation, questioning, expert witness testimony, professional discussion or any other approved method.

Further guidance on this ECITB unit can be found in the SQA Accreditation ECITB Assessment Strategy document.



<b>ECITB unit:</b>	<b>ECITBCO-S4 Work with environmental sustainability in mind</b>
<b>SQA Accreditation unit code:</b> UT56 04	
<b>SCQF level:</b> 6 <b>Credit value:</b> 6	
<p><b>Unit purpose and aim:</b> This unit has been designed to assess learner competence in being able to:</p> <ol style="list-style-type: none"> <li>1. Explain how to establish and maintain environmental sustainability</li> <li>2. Explain how to deal with environmental considerations</li> <li>3. Explain how to keep others informed about environmental plans or activities which affect them</li> <li>4. Describe how to minimise use of resources and production of waste materials</li> <li>5. Understand how to store re-usable materials and dispose of waste materials</li> <li>6. Explain how to report environmental information, improvements, concerns or incidents</li> </ol>	
<p><b>Details of the relationship between the unit and relevant National Occupational Standards or other professional standards or curricula (if appropriate)</b></p> <p>Derived from ECITB/ECRS 11.04 (CO 5)</p>	

<b>Learning outcomes</b>	<b>Assessment criteria</b>
The candidate will:	The candidate can:
LO1 Work in a way that contributes to environmental sustainability	K1.1 Describe how to reduce impact on the environment by following environmentally safe working practices and taking precautions to minimise environmental damage
LO2 Understand the move towards a net zero future, in accordance with their organisation's policies and targets	K2.1 Explain how to deal effectively with resources taking environmental considerations into account
	K2.2 Describe how to minimise use of resources, where possible
	K2.3 Describe how to minimise the production of waste wherever and however possible

<b>Learning outcomes</b> The candidate will:	<b>Assessment criteria</b> The candidate can:
	K2.4 Explain the correct disposal of waste materials
	K2.5 Explain how to store re-usable materials and equipment in accordance with procedures
LO3 Understand reporting lines and responsibility	K3.1 Report any environmental incidents, concerns or improvements that are identified

<b>Assessment requirements or guidance specified by a sector regulatory body (if appropriate)</b>	<p>Assessment of this unit will be by occupationally competent assessors approved by an awarding body. They will gather sufficient evidence of competence from discussions with candidates about work-based activities on suitable engineering construction industry sites or realistic workplace environment. Such methods may include discussions about product evidence and questioning.</p> <p>Assessment criteria may be satisfied by observation, questioning, expert witness testimony, professional discussion or any other approved method.</p> <p>Further guidance on this ECITB unit can be found in the SQA ECITB Assessment Strategy document.</p>
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<b>ECITB unit:</b>	<b>ECITBCO-S5 Interpret and follow documentation and procedures</b>
<b>SQA Accreditation unit code:</b> UT23 04	
<b>SCQF level:</b> 6 <b>Credit value:</b> 6	
<p><b>Unit purpose and aim:</b> This unit has been designed to assess learner competence in being able to:</p> <ol style="list-style-type: none"> <li>1. Interpret and follow documented procedures</li> <li>2. Understand the principles of documentation</li> <li>3. Understand the principles of quality control</li> <li>4. Understand the principles of legal documentation</li> <li>5. Understand the conventions of documentation and information communication</li> <li>6. Understand the hazards arising from tools and equipment</li> </ol>	
<p><b>Details of the relationship between the unit and relevant National Occupational Standards or other professional standards or curricula (if appropriate)</b></p> <p>Derived from ECITB/ECRS 11.04 (CO 1)</p>	

<b>Learning outcomes</b>	<b>Assessment criteria</b>
The candidate will:	The candidate can:
LO1 Interpret and follow documentation and procedures	K1.1 Check the revisions, date and validity of documentation
	K1.2 Check the revisions, date and validity of documentation
	K1.3 Interpret equipment manuals, relevant plans and schedules
	K1.4 Follow authorization procedures, quality procedures and related documentation
	K1.5 Complete all relevant documentation correctly

<b>Learning outcomes</b> The candidate will:	<b>Assessment criteria</b> The candidate can:
	K1.6 Report defects or variations and any instance where the activity cannot be met K1.7 Check that all required actions are completed, and reports are finished K1.8 Follow appropriate handover procedures K1.9 Follow safety procedures, risk assessments and methods of work K1.10 Reinstate the work area, materials, tools and equipment
LO2 Understand the principles and conventions of documentation	K2.1 Explain the principles, uses and conventions of engineering drawings K2.2 Describe the relevance of worksheets, technical drawings and related specifications K2.3 Describe the relationship between details and diagrams in engineering drawings and specifications K2.4 Explain the diagrams and key information in catalogues and equipment manuals K2.5 Describe the sources of manufacturer or additional relevant information K2.6 Explain the use of plans and schedules K2.7 Describe procedures and authorisations of related to tasks undertaken K2.8 Describe quality control and documentation procedures K2.9 Describe the importance of checking and confirming procedures and documentation K2.10 Describe the importance of signing legal documentation and the consequences accountabilities K2.11 Describe reporting of tasks undertaken

<b>Learning outcomes</b> The candidate will:	<b>Assessment criteria</b> The candidate can:
	K2.12 Explain actions to take in the event of variations to the plan of work
	K2.13 Describe reporting lines and procedures
LO3 Understand the hazards arising from tools and equipment	K3.1 Describe the hazards that can arise from preparing work materials, tools and equipment
	K3.2 Describe the hazards that can arise from reinstating work materials, tools and equipment

<b>Assessment requirements or guidance specified by a sector regulatory body (if appropriate)</b>	<p>Assessment of this unit will be by occupationally competent assessors approved by an awarding body. They will gather sufficient evidence of competence from discussions with candidates about work-based activities on suitable engineering construction industry sites or realistic workplace environment. Such methods may include discussions about product evidence and questioning.</p> <p>Assessment criteria may be satisfied by observation, questioning, expert witness testimony, professional discussion or any other approved method.</p> <p>Further guidance on this ECITB unit can be found in the SQA Accreditation ECITB Assessment Strategy document.</p>
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<b>ECITB unit:</b>	<b>ECITBCO-S6 Use digital technology and information effectively and securely</b>
<b>SQA Accreditation unit code:</b> UT54 04	
<b>SCQF level:</b> 5 <b>Credit value:</b> 2	
<b>Unit purpose and aim:</b> This unit has been designed to assess learner competence in being able to interpret and use basic digital information and technology securely.	
<b>Details of the relationship between the unit and relevant National Occupational Standards or other professional standards or curricula (if appropriate)</b> Derived from ECITB/ECRS 11.04 (CO 1)	

<b>Learning outcomes</b>	<b>Assessment criteria</b>
The candidate will:	The candidate can:
LO1 Have a knowledge of basic digital information and technology	K1.1 Demonstrate awareness of the need for security of digital data and technology use in the workplace, the reasons for and importance of this, including relevant legal aspects
	K1.2 Describe simple permission levels related to data access
	K1.3 Demonstrate awareness of the requirement of passwords in data security and how to manage passwords effectively, as appropriate for their role
	K1.4 Describe how to use software and digital systems necessary for their role
	K1.5 Describe how to use digital technology and equipment necessary for their role

<b>Learning outcomes</b> The candidate will:	<b>Assessment criteria</b> The candidate can:
	K1.6 Demonstrate awareness of how to handle digital content and online information, as relevant to their role K1.7 Demonstrate appreciation of how to conduct basic searches online, safely and appropriately to find digital information related to their role K1.8 Demonstrate awareness of how to verify information, related to the task in hand and job role, is appropriate and correct K1.9 Describe how to learn and work remotely using IT K1.10 Demonstrate awareness of the benefits of e-learning and immersive technology for training and professional development and how to use and access this
LO2 Interpret and use basic technology and information	S2.1 Use basic digital information and technology securely in accordance with company procedures S2.2 Search, select and use work-related digital information, as requested by a supervisor, to support delivery of work-related tasks S2.3 Handle standard digital content in order to communicate information, as required for their role in accordance with requests or procedures
LO3 Comprehend standard digital technology and use effectively and securely	S3.1 Use the basic features of relevant digital technology and equipment, as relevant to their role S3.2 Use standard technology to save and send digital information, in accordance with procedures S3.3 Access appropriate help and support when problems with digital technology arise S3.4 Use a range of available technology for training and professional development



<b>Assessment requirements or guidance specified by a sector regulatory body (if appropriate)</b>	<p>Assessment of this unit will be by occupationally competent assessors approved by an awarding body. They will gather sufficient evidence of competence from discussions with candidates about work-based activities on suitable engineering construction industry sites or realistic workplace environment. Such methods may include discussions about product evidence and questioning.</p> <p>Assessment criteria may be satisfied by observation, questioning, expert witness testimony, professional discussion or any other approved method.</p> <p>Further guidance on this ECITB unit can be found in the SQA Accreditation ECITB Assessment Strategy document.</p>
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<b>ECITB unit:</b>	<b>MPSE-01S Position and install electrical equipment and systems in engineering construction</b>
<b>SQA Accreditation unit code: UT30 04</b>	
<b>SCQF level: 6      Credit value:                      9</b>	
<p><b>Unit purpose and aim:</b></p> <p>This unit has been designed to assess learner competence in being able to position and install electrical components, equipment and systems.</p> <p>In the context of this unit, responsibility extends to the interpretation of given specifications, selecting appropriate methods, techniques, choosing and/or modifying procedures to achieve the best possible result in the conditions applying. In some cases, the learner may still be expected to refer to others for final authorisation.</p>	
<p><b>Details of the relationship between the unit and relevant National Occupational Standards or other professional standards or curricula (if appropriate)</b></p> <p>Derived from NOS: ECIMPSE01</p>	

<b>Learning outcomes</b>	<b>Assessment criteria</b>
The candidate will:	The candidate can:
LO1 Understand health and safety legislation, regulations and safe working practices and procedures	K1.1 Explain relevant legislative, regulatory and local requirements or procedures and safe working practices including their responsibilities with regard to reporting lines and procedures
	K1.2 Explain the purpose and nature of risk assessments, method statements, and permit to work systems, and the relevance of local procedures and guidance notes
	K1.3 Explain relevant legislative, regulatory and local requirements or procedures and safe working practices including their responsibilities with regard to reporting lines and procedures

<b>Learning outcomes</b> The candidate will:	<b>Assessment criteria</b> The candidate can:
LO2 Understand the work area, material and equipment preparation and reinstatement requirements for positioning and installing electrical plant and equipment	K2.1 Describe preparation and reinstatement requirements in respect of work area, tools, material and equipment, and the possible consequences of incorrect actions in these areas
	K2.2 Describe tool and equipment control, the correct use of relevant tools and equipment and their individual responsibility for the use, care and security of those they use

<b>Learning outcomes</b> The candidate will:	<b>Assessment criteria</b> The candidate can:
LO3 Work safely and minimise risk at all times	K3.1 Identify a range of hazards
	K3.2 Take appropriate action to minimise the risk from hazards
	K3.3 Refer safety related matters to appropriate persons as required
	K3.4 Work in accordance with relevant sections of the Health and Safety at Work Act and its associated regulations
	K3.5 Work in accordance with the requirements of risk assessments and permit to work systems
LO4 Prepare work area, materials and equipment to position and install electrical plant and equipment	S4.1 <b>Ensure that the work environment is suitable for the work activities to be undertaken</b>
	S4.2 <b>Ensure the work area and materials are prepared to the required standards for the engineering activity to be completed</b>
	S4.3 Deal promptly and effectively with problems, reporting solutions, and those that cannot be solved
LO5 Position and install electrical plant and equipment	S5.1 <b>Use the appropriate methods and techniques to position and install the plant and equipment in their correct positions in accordance with the specification</b>
	S5.2 <b>Ensure that the installation is protected from the environment and potential damage</b>
	S5.3 <b>Check that the assembly has been completed to the required specification and that all components are free from damage</b>
	S5.4 Deal promptly and effectively with problems, reporting solutions, and those that cannot be solved

<b>Learning outcomes</b> The candidate will:	<b>Assessment criteria</b> The candidate can:
LO6 Carry out the necessary actions after completing the positioning and installation of electrical plant and equipment	S6.1 <b>Reinstate the work area to a safe condition and correctly dispose of waste materials</b>
	S6.2 <b>Ensure that all required connections to the installed equipment are complete</b>

<b>Assessment requirements or guidance specified by a sector regulatory body (if appropriate)</b>	<p>Assessment of this unit will be by occupationally competent assessors approved by an awarding body. They will gather sufficient evidence of competence from work-based activities on suitable engineering construction industry sites.</p> <p>Assessment criteria may be satisfied by observation, questioning, expert witness testimony, professional discussion or any other approved method.</p> <p><b>Mandatory workplace observation is required for assessment criteria S4.1, S4.2, S5.1, S5.2, S5.3, S6.1 &amp; S6.2</b> which may take the form of an expert witness testimony supported by photographic and/or video evidence.</p> <p>Further guidance on this ECITB unit can be found in the SQA Accreditation ECITB Assessment Strategy document.</p>
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<b>ECITB unit:</b>	<b>MPSE-02S Disassemble electrical equipment and systems in engineering construction</b>
<b>SQA Accreditation unit code: UT15 04</b>	
<b>SCQF level: 7      Credit value:                      8</b>	
<p><b>Unit purpose and aim:</b></p> <p>This unit has been designed to assess learner competence in being able to disassemble electrical equipment and systems.</p> <p>In the context of this unit, responsibility extends to the interpretation of given specifications, selecting appropriate methods, techniques, choosing and/or modifying procedures to achieve the best possible result in the conditions applying. In some cases, the learner may still be expected to refer to others for final authorisation.</p>	
<p><b>Details of the relationship between the unit and relevant National Occupational Standards or other professional standards or curricula (if appropriate)</b></p> <p>Derived from NOS: ECIMPSE02</p>	

<b>Learning outcomes</b>	<b>Assessment criteria</b>
The candidate will:	The candidate can:
LO1 Understand health and safety legislation, regulations and safe working practices and procedures	K1.1 Explain the requirements of health and safety legislation
	K1.2 Explain the purpose and nature of risk assessments, method statements and permit to work systems, and the relevance of local procedures and guidance notes
	K1.3 Describe reporting lines and procedures
LO2 Understand the work area, material and equipment preparation and reinstatement	K2.1 Describe preparation and reinstatement requirements in respect of the work area, material, tools and equipment, and the possible consequences of incorrect actions in these areas

<b>Learning outcomes</b> The candidate will:	<b>Assessment criteria</b> The candidate can:
requirements for disassembling electrical plant and equipment	K2.2 Describe tool and equipment control, the correct use of relevant tools and equipment and their individual responsibility for the use, care and security of those they use

<b>Learning outcomes</b> The candidate will:	<b>Assessment criteria</b> The candidate can:
LO3 Understand the tools, terminology, techniques and practices for disassembling electrical plant and equipment	K3.1 Explain the principles, uses and conventions of relevant engineering drawings and related specifications
	K3.2 Describe disassembling methods and techniques
	K3.3 Explain reporting documentation and control procedures
	K3.4 Describe compliance checking methods and techniques
LO4 Work safely and minimise risk at all times	S4.1 Identify a range of hazards
	S4.2 Take appropriate action to minimise the risk from hazards
	S4.3 Refer safety related matters to appropriate persons as required
	S4.4 Work in accordance with relevant sections of the Health and Safety at Work Act and its associated regulations
	S4.5 Work in accordance with the requirements of risk assessments and permit to work systems
LO5 Prepare work area, materials and equipment to dismantle electrical plant and equipment	S5.1 <b>Ensure that the work environment, equipment and materials are suitable for the work activities to be undertaken</b>
	S5.2 <b>Ensure that any stored energy or substances are released correctly and safely</b>
	S5.3 <b>Obtain and prepare the appropriate tools and equipment and check they are in a safe and usable condition for the task</b>
	S5.4 Deal promptly and effectively with problems, reporting solutions, and those that cannot be solved



<b>Learning outcomes</b> The candidate will:	<b>Assessment criteria</b> The candidate can:
LO6 Disassemble electrical plant and equipment	S6.1 <b>Interpret and follow the relevant specification, as required</b>
	S6.2 <b>Ensure if appropriate that components are marked for reassembly</b>
	S6.3 <b>Carry out the disassembling to the agreed level using correct tools and equipment</b>
	S6.4 Deal promptly and effectively with problems, reporting solutions, and those that cannot be solved
LO7 Carry out the necessary actions after completing the disassembling of electrical plant and equipment	S7.1 <b>Reinstate the work area to a safe condition and correctly dispose of waste materials and components</b>

<b>Assessment requirements or guidance specified by a sector regulatory body (if appropriate)</b>	<p>Assessment of this unit will be by occupationally competent assessors approved by an awarding body.</p> <p>They will gather sufficient evidence of competence from work-based activities on suitable engineering construction industry sites.</p> <p>Assessment criteria may be satisfied by observation, questioning, expert witness testimony, professional discussion or any other approved method.</p> <p><b>Mandatory workplace observation is required for assessment criteria S5.1, S5.2, S5.3, S6.1, S6.2, S6.3 &amp; S7.1</b> which may take the form of an expert witness testimony supported by photographic and/or video evidence.</p> <p>Further guidance on this ECITB unit can be found in the SQA Accreditation ECITB Assessment Strategy document.</p>
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<b>ECITB unit:</b>	<b>MPSE-03S Carry out preventative and corrective maintenance on electrical equipment and systems in engineering construction</b>
<b>SQA Accreditation unit code: UT04 04</b>	
<b>SCQF level: 7      Credit value:                      12</b>	
<p><b>Unit purpose and aim:</b></p> <p>This unit has been designed to assess learner competence in being able to carry out preventative and corrective maintenance on electrical equipment and systems.</p> <p>In the context of this unit, responsibility extends to the interpretation of given specifications, selecting appropriate methods, techniques, choosing and/or modifying procedures to achieve the best possible result in the conditions applying. In some cases, the learner may still be expected to refer to others for final authorisation.</p>	
<p><b>Details of the relationship between the unit and relevant National Occupational Standards or other professional standards or curricula (if appropriate)</b></p> <p>Derived from NOS: ECIMPSE03</p>	

<b>Learning outcomes</b>	<b>Assessment criteria</b>
The candidate will:	The candidate can:
LO1 Understand health and safety legislation, regulations and safe working practices and procedures	K1.1 Explain relevant legislative, regulatory and local requirements or procedures and safe working practices including their responsibilities with regard to reporting lines and procedures
	K1.2 Explain the purpose and nature of risk assessments, method statements, and permit to work systems, and the relevance of local procedures and guidance notes
LO2 Understand the work area, material and equipment preparation and reinstatement	K2.1 Describe preparation and reinstatement requirements in respect of the work area, material, tools and equipment, and the possible consequences of incorrect actions in these areas

<b>Learning outcomes</b> The candidate will:	<b>Assessment criteria</b> The candidate can:
requirements for planned maintenance on electrical plant and equipment	K2.2 Describe tool and equipment control, the correct use of relevant tools and equipment and their individual responsibility for the use, care and security of those they use

<b>Learning outcomes</b> The candidate will:	<b>Assessment criteria</b> The candidate can:
LO3 Understand the tools, terminology, techniques and practices for planned maintenance on electrical plant and equipment	K3.1 Explain the performance requirements of electrical equipment and systems that they are maintaining including how the equipment and systems should operate
	K3.2 Describe the different types of adjustment techniques and their requirements
	K3.3 Describe maintenance records and documentation procedures
LO4 Work safely and minimise risk at all times	S4.1 Identify a range of hazards
	S4.2 Take appropriate action to minimise the risk from hazards
	S4.3 Refer safety related matters to appropriate persons as required
	S4.4 Work in accordance with relevant sections of the Health and Safety at Work Act and its associated regulations
	S4.5 Work in accordance with the requirements of risk assessments and permit to work systems
LO5 Prepare work area, materials and equipment to dismantle electrical plant and equipment	S5.1 <b>Ensure that the work environment, equipment and materials are suitable for the work activities to be undertaken</b>
	S5.2 <b>Ensure that the work environment, materials, tools and equipment are suitably prepared for the work activities to be undertaken</b>
	S5.3 <b>Record the outcome of the inspection, testing and adjustment including reporting any instances where the equipment fails to meet the required performance after adjustments</b>

<b>Learning outcomes</b> The candidate will:	<b>Assessment criteria</b> The candidate can:
LO6 Carry out planned maintenance procedures on electrical plant and equipment	S6.1 <b>Carry out preventative maintenance on the equipment and systems to prevent failure, e.g. clean</b>
	S6.2 <b>Undertake any necessary maintenance and inspection related testing procedures including interrogation</b>
	S6.3 If the adjusted electrical equipment fails to meet the required operating specification, adjust and retest again, as appropriate
LO7 Carry out the necessary actions after completing the disassembling of electrical plant and equipment	S7.1 <b>Reinstate the work area to a safe condition and correctly dispose of waste materials and components</b>
	S7.2 <b>Complete relevant maintenance records and pass them on to the appropriate person</b>

<p><b>Assessment requirements or guidance specified by a sector regulatory body (if appropriate)</b></p>	<p>Assessment of this unit will be by occupationally competent assessors approved by an awarding body.</p> <p>They will gather sufficient evidence of competence from work-based activities on suitable engineering construction industry sites.</p> <p>Assessment criteria may be satisfied by observation, questioning, expert witness testimony, professional discussion or any other approved method.</p> <p><b>Mandatory workplace observation is required for assessment criteria S5.1, S5.2, S5.3, S6.1, S6.2, S7.1 &amp; S7.2</b> which may take the form of an expert witness testimony supported by photographic and/or video evidence.</p> <p>Further guidance on this ECITB unit can be found in the SQA Accreditation ECITB Assessment Strategy document.</p>
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<b>ECITB unit:</b>	<b>MPSE-05S Remove and replace electrical components from equipment and systems in engineering construction</b>
<b>SQA Accreditation unit code: UT38 04</b>	
<b>SCQF level: 6      Credit value:                      8</b>	
<p><b>Unit purpose and aim:</b></p> <p>This unit has been designed to assess learner competence in being able to remove and replace components on electrical equipment and systems.</p> <p>In the context of this unit, responsibility extends to the interpretation of given specifications, selecting appropriate methods, techniques, choosing and/or modifying procedures to achieve the best possible result in the conditions applying. In some cases, the learner may still be expected to refer to others for final authorisation.</p>	
<p><b>Details of the relationship between the unit and relevant National Occupational Standards or other professional standards or curricula (if appropriate)</b></p> <p>Derived from NOS: ECIMPSE05</p>	

<b>Learning outcomes</b>	<b>Assessment criteria</b>
The candidate will:	The candidate can:
LO1 Understand health and safety legislation, regulations and safe working practices and procedures	K1.1 Explain relevant legislative, regulatory and local requirements or procedures and safe working practices including their responsibilities with regard to reporting lines and procedures
	K1.2 Explain the purpose and nature of risk assessments, method statements, and permit to work systems, and the relevance of local procedures and guidance notes
LO2 Understand the work area, material and equipment preparation and reinstatement	K2.1 Describe preparation and reinstatement requirements in respect of the work area, material, tools and equipment, and the possible consequences of incorrect actions in these areas

<b>Learning outcomes</b> The candidate will:	<b>Assessment criteria</b> The candidate can:
requirements for the removal and replacement of electrical plant and equipment	K2.2 Describe tool and equipment control, the correct use of relevant tools and equipment and their individual responsibility for the use, care and security of those they use



<b>Learning outcomes</b> The candidate will:	<b>Assessment criteria</b> The candidate can:
LO3 Understand the tools, terminology, techniques and practices for removing and replacing electrical plant and equipment	K3.1 Explain the principles, uses and conventions of relevant engineering drawings and related specifications
	K3.2 Explain component removal methods and procedures
	K3.3 Identify and describe common component defects
	K3.4 Explain labelling and storage procedures
	K3.5 Explain component replacement methods and procedures
	K3.6 Explain reporting documentation and control procedures
LO4 Work safely and minimise risk at all times	S4.1 Identify a range of hazards
	S4.2 Take appropriate action to minimise the risk from hazards
	S4.3 Refer safety related matters to appropriate persons as required
	S4.4 Work in accordance with relevant sections of the Health and Safety at Work Act and its associated regulations
	S4.5 Work in accordance with the requirements of risk assessments and permit to work systems
LO5 Prepare work area, materials and equipment to remove and replace components from electrical plant and equipment	S5.1 <b>Ensure that the work environment is suitable for the work activities to be undertaken</b>
	S5.2 Deal promptly and effectively with problems, reporting solutions, and those that cannot be solved
	S6.1 <b>Mark component orientation for re-assembly if appropriate</b>

<b>Learning outcomes</b> The candidate will:	<b>Assessment criteria</b> The candidate can:
LO6 Remove and replace components from electrical plant and equipment	S6.2 <b>Remove the required components using appropriate tools and techniques taking precautions to prevent any damage to components, tools and equipment</b>
	S6.3 <b>Check the condition of the removed components and record those that will need replacing</b>
	S6.4 <b>Replace the required components using appropriate tools and techniques taking precautions to prevent any damage to components, tools and equipment</b>
	S6.5 Deal promptly and effectively with problems, reporting solutions, and those that cannot be solved
LO7 Carry out the necessary actions after completing the disassembling of electrical plant and equipment	S7.1 <b>Reinstate the work area and dispose of waste materials in accordance with procedures</b>

<b>Assessment requirements or guidance specified by a sector regulatory body (if appropriate)</b>	<p>Assessment of this unit will be by occupationally competent assessors approved by an awarding body. They will gather sufficient evidence of competence from work-based activities on suitable engineering construction industry sites.</p> <p>Assessment criteria may be satisfied by observation, questioning, expert witness testimony, professional discussion or any other approved method.</p> <p><b>Mandatory workplace observation is required for assessment criteria S5.1, S6.1, S6.2, S6.3, S6.4 &amp; S7.1</b> which may take the form of an expert witness testimony supported by photographic and/or video evidence.</p>
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	Further guidance on this ECITB unit can be found in the SQA Accreditation ECITB Assessment Strategy document.
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<b>ECITB unit:</b>	<b>MPSE-09S Diagnose faults in electrical equipment and systems in engineering construction plant, and determine the potential for the viability of repair</b>
<b>SQA Accreditation unit code: UT12 04</b>	
<b>SCQF level: 7      Credit value:                      16</b>	
<p><b>Unit purpose and aim:</b></p> <p>This unit has been designed to assess learner competence in being able to diagnose faults on electrical equipment and systems and determine the feasibility of repair.</p> <p>In the context of this unit, responsibility extends to the interpretation of given specifications, selecting appropriate methods, techniques, choosing and/or modifying procedures to achieve the best possible result in the conditions applying. In some cases, the learner may still be expected to refer to others for final authorisation.</p>	
<p><b>Details of the relationship between the unit and relevant National Occupational Standards or other professional standards or curricula (if appropriate)</b></p> <p>Derived from NOS: ECIMPSE09</p>	

<b>Learning outcomes</b>	<b>Assessment criteria</b>
The candidate will:	The candidate can:
LO1 Understand health and safety legislation, regulations and safe working practices and procedures	K1.1 Explain the requirements of health and safety legislation
	K1.2 Explain the purpose and nature of risk assessments, method statements, and permit to work systems, and the relevance of local procedures and guidance notes
	K1.3 Describe reporting lines and procedures
LO2 Understand the work area, material and equipment preparation and reinstatement	K2.1 Describe preparation and reinstatement requirements in respect of the work area, material, tools and equipment, and the possible consequences of incorrect actions in these areas

<b>Learning outcomes</b> The candidate will:	<b>Assessment criteria</b> The candidate can:
requirements to determine and diagnose faults of electrical plant and equipment	K2.2 Describe tool and equipment control, the correct use of relevant tools and equipment and their individual responsibility for the use, care and security of those they use
LO3 Understand the tools, terminology, techniques and practices for determining and diagnosing faults in electrical plant and equipment	K3.1 Explain the principles and uses of fault diagnostic aids
	K3.2 Describe fault finding methods and techniques
	K3.1 Describe how to how to interpret the information and fault found and the: <ul style="list-style-type: none"> <li>a. Likely root cause(s)</li> <li>b. The potential consequences associated with it</li> <li>c. Potential corrective or preventative action</li> </ul>
	K3.4 Describe how to source and use relevant information on the symptoms and problems associated with the electrical components, equipment and systems
	K3.5 Explain procedures for recording the fault and related diagnosis
LO4 Work safely and minimise risk at all times	S4.1 Identify a range of hazards
	S4.2 Take appropriate action to minimise the risk from hazards
	S4.3 Refer safety related matters to appropriate persons as required
	S4.4 Work in accordance with relevant sections of the Health and Safety at Work Act and its associated regulations
	S4.5 Work in accordance with the requirements of risk assessments and permit to work systems
LO5 Prepare work area, materials and equipment to diagnose and	S5.1 <b>Ensure that the work environment is suitable for the work activities to be undertaken</b>

<b>Learning outcomes</b> The candidate will:	<b>Assessment criteria</b> The candidate can:
determine faults in electrical plant and equipment	S5.2 Deal promptly and effectively with problems, reporting solutions, and those that cannot be solved
LO6 Diagnose and determine the cause of faults in electrical plant and equipment	S6.1 Review and use all relevant information on the symptoms and problems associated with the electrical components, equipment and systems
	S6.2 Select, use and apply diagnostic techniques, tools and aids to locate faults
	S6.3 Complete the fault diagnosis as required
	S6.4 Determine the implications of the fault in relation to: <ul style="list-style-type: none"> <li>a. Related equipment</li> <li>b. Related process</li> <li>c. Health and safety</li> <li>d. The escalation processes</li> </ul>
	S6.5 Use the evidence from the diagnosis along with consideration of the implications of the fault in order to draw valid conclusions about the nature and probable cause of the fault
LO7 Carry out the necessary actions after completing the diagnosing and determining faults in electrical plant and equipment	S7.1 <b>Reinstate the work area to a safe condition and correctly dispose of waste materials and components</b>

<b>Assessment requirements or guidance specified by a sector regulatory body (if appropriate)</b>	<p>Assessment of this unit will be by occupationally competent assessors approved by an awarding body. They will gather sufficient evidence of competence from work-based activities on suitable engineering construction industry sites.</p> <p>Assessment criteria may be satisfied by observation, questioning, expert witness testimony, professional discussion or any other approved method.</p> <p><b>Mandatory workplace observation is required for assessment criteria S5.1, S6.2, S6.3 &amp; S7.1</b> which may take the form of an expert witness testimony supported by photographic and/or video evidence.</p> <p>Further guidance on this ECITB unit can be found in the SQA Accreditation ECITB Assessment Strategy document.</p>
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<b>ECITB unit:</b>	<b>MPSE-10S Assemble electrical equipment and systems in engineering construction</b>
<b>SQA Accreditation unit code US97 04</b>	
<b>SCQF level: 7      Credit value:                      10</b>	
<p><b>Unit purpose and aim:</b></p> <p>This unit has been designed to assess learner competence in being able to assemble electrical equipment and systems.</p> <p>In the context of this unit, responsibility extends to the interpretation of given specifications, selecting appropriate methods, techniques, choosing and/or modifying procedures to achieve the best possible result in the conditions applying. In some cases, the learner may still be expected to refer to others for final authorisation.</p>	
<p><b>Details of the relationship between the unit and relevant National Occupational Standards or other professional standards or curricula (if appropriate)</b></p> <p>Derived from NOS: ECIMPSE10</p>	

<b>Learning outcomes</b>	<b>Assessment criteria</b>
The candidate will:	The candidate can:
LO1 Understand health and safety legislation, regulations and safe working practices and procedures	K1.1 Explain the requirements of health and safety legislation
	K1.2 Explain the purpose and nature of risk assessments, method statements, and permit to work systems, and the relevance of local procedures and guidance notes
	K1.3 Describe reporting lines and procedures
LO2 Understand the work area, material and equipment preparation and reinstatement	K2.1 Describe preparation and reinstatement requirements in respect of the work area, material, tools and equipment, and the possible consequences of incorrect actions in these areas



<b>Learning outcomes</b> The candidate will:	<b>Assessment criteria</b> The candidate can:
requirements to assemble electrical plant and equipment	K2.2 Describe the tool and equipment control, the correct use of relevant tools and equipment and their individual responsibility for the use, care and security of those they use

<b>Learning outcomes</b> The candidate will:	<b>Assessment criteria</b> The candidate can:
LO3 Understand the tools, terminology, techniques and practices for assembling electrical plant and equipment	K3.1 Explain the principles, uses and conventions of relevant instructions, engineering drawings and related specifications
	K3.2 Describe assembly methods and procedures for electrical equipment and systems: <ul style="list-style-type: none"> <li>a. The implications of different assembly techniques for different components</li> <li>b. Setting up and alignment</li> <li>c. Sequential tightening and torquing</li> <li>d. Fastenings</li> <li>e. Electrical terminations</li> </ul>
	K3.3 Describe the types of defects or damage that may be found when assembling electrical equipment and systems and what to do if found
	K3.4 Explain reporting documentation and control procedures

<b>Learning outcomes</b> The candidate will:	<b>Assessment criteria</b> The candidate can:
LO4 Work safely and minimise risk at all times	S4.1 Identify a range of hazards
	S4.2 Take appropriate action to minimise the risk from hazards
	S4.3 Refer safety related matters to appropriate persons as required
	S4.4 Work in accordance with relevant sections of the Health and Safety at Work Act and its associated regulations
	S4.5 Work in accordance with the requirements of risk assessments and permit to work systems
LO5 Prepare work area, materials and equipment to assemble electrical plant and equipment	S5.1 <b>Ensure that the work environment is suitable for the work activities to be undertaken</b>
	S5.2 Deal promptly and effectively with problems, reporting solutions, and those that cannot be solved
LO6 Assemble components of electrical plant and equipment	S6.1 <b>Follow the relevant instructions, assembly drawings and specifications</b>
	S6.2 <b>Use the correct tools and techniques to assemble the electrical equipment and systems in their correct positions</b>
	S6.3 <b>Check the securing arrangements of the assembled electrical equipment and systems</b>
	S6.4 Deal promptly and effectively with problems, reporting solutions, and those that cannot be solved
	S7.1 <b>Reinstate the work area to a safe condition and correctly dispose of waste materials and components</b>

<b>Learning outcomes</b> The candidate will:	<b>Assessment criteria</b> The candidate can:
LO7 Carry out the necessary actions after completing the assembly of electrical plant and equipment	S7.2 <b>Check the completed assembly ensuring all operations have been completed and that the finished assembly meets specification</b>

<b>Assessment requirements or guidance specified by a sector regulatory body (if appropriate)</b>	<p>Assessment of this unit will be by occupationally competent assessors approved by an awarding body. They will gather sufficient evidence of competence from work-based activities on suitable engineering construction industry sites.</p> <p>Assessment criteria may be satisfied by observation, questioning, expert witness testimony, professional discussion or any other approved method.</p> <p><b>Mandatory workplace observation is required for assessment criteria S5.1, S6.1, S6.2, S6.3, S7.1 &amp; S7.2</b> which may take the form of an expert witness testimony supported by photographic and/or video evidence.</p> <p>Further guidance on this ECITB unit can be found in the SQA Accreditation ECITB Assessment Strategy document.</p>
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<b>ECITB unit:</b>	<b>MPSE-11S Repair electrical equipment and systems in engineering construction plant</b>
<b>SQA Accreditation unit code: UT41 04</b>	
<b>SCQF level: 7      Credit value:                      9</b>	
<p><b>Unit purpose and aim:</b></p> <p>This unit has been designed to assess learner competence in repairing electrical components, equipment and systems.</p> <p>In the context of this unit, responsibility extends to the interpretation of given specifications, selecting appropriate methods, techniques, choosing and/or modifying procedures to achieve the best possible result in the conditions applying. In some cases, the learner may still be expected to refer to others for final authorisation.</p>	
<p><b>Details of the relationship between the unit and relevant National Occupational Standards or other professional standards or curricula (if appropriate)</b></p> <p>Derived from NOS: ECIMPSE11</p>	

<b>Learning outcomes</b>	<b>Assessment criteria</b>
The candidate will:	The candidate can:
LO1 Understand health and safety legislation, regulations and safe working practices and procedures	K1.1 Explain the requirements of health and safety legislation
	K1.2 Explain the purpose and nature of risk assessments, method statements, and permit to work systems, and the relevance of local procedures and guidance notes
LO2 Understand the work area, material and equipment preparation and reinstatement	K2.1 Describe preparation and reinstatement requirements in respect of the work area, material, tools and equipment, and the possible consequences of incorrect actions in these areas

<b>Learning outcomes</b> The candidate will:	<b>Assessment criteria</b> The candidate can:
requirements for repairing of electrical plant and equipment	K2.2 Describe the tool and equipment control, the correct use of relevant tools and equipment and their individual responsibility for the use, care and security of those they use
LO3 Understand the tools, terminology, techniques and practices for repairing electrical plant and equipment	K3.1 Explain the principles, uses and conventions of relevant instructions, technical drawings or other specifications for the electrical equipment or system to be repaired
	K3.1 Describe methods and techniques used to repair electrical equipment and systems: a. The reasons for repair b. The process for putting in place backup equipment or systems, if needed, whilst repairs are undertaken
LO4 Work safely and minimise risk at all times	S4.1 Identify a range of hazards
	S4.2 Take appropriate action to minimise the risk from hazards
	S4.3 Refer safety related matters to appropriate persons as required
	S4.4 Work in accordance with relevant sections of the Health and Safety at Work Act and its associated regulations
	S4.5 Work in accordance with the requirements of risk assessments and permit to work systems
LO5 Prepare work area, materials and equipment to repair electrical plant and equipment	S5.1 <b>Ensure that the work environment is suitable for the work activities to be undertaken</b>
	S5.2 Deal promptly and effectively with problems, reporting solutions, and those that cannot be solved
LO6 Repair electrical plant and equipment	S6.1 <b>Follow the relevant instructions, technical drawings or other specifications for the electrical equipment or system to be repaired</b>

<b>Learning outcomes</b> The candidate will:	<b>Assessment criteria</b> The candidate can:
	<p data-bbox="728 252 1294 284"><b>S6.2 Carry out repairs as required</b></p> <p data-bbox="728 320 2116 384">S6.3 Deal promptly and effectively with problems, reporting solutions, and those that cannot be solved</p>
<p data-bbox="107 427 689 528">LO7 Carry out the necessary actions after repairing electrical plant and equipment</p>	<p data-bbox="728 427 2033 491"><b>S7.1 Reinstate the work area to a safe condition and correctly dispose of waste materials and components</b></p> <p data-bbox="728 528 2049 592"><b>S7.2 Check that the repaired electrical equipment or system meets the specified operating conditions</b></p>

<p data-bbox="107 684 638 794"><b>Assessment requirements or guidance specified by a sector regulatory body (if appropriate)</b></p>	<p data-bbox="728 684 2116 786">Assessment of this unit will be by occupationally competent assessors approved by an awarding body. They will gather sufficient evidence of competence from work-based activities on suitable engineering construction industry sites or realistic workplace environment.</p> <p data-bbox="728 807 2094 871">Assessment criteria may be satisfied by observation, questioning, expert witness testimony, professional discussion or any other approved method.</p> <p data-bbox="728 892 2072 994"><b>Mandatory workplace observation is required for assessment criteria S5.1, S6.1, S6.2, S7.1 &amp; S7.2</b> which may take the form of an expert witness testimony supported by photographic and/or video evidence.</p> <p data-bbox="728 1015 2116 1088">Further guidance on this ECITB unit can be found in the SQA Accreditation ECITB Assessment Strategy document.</p>
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<b>ECITB unit:</b>	<b>MPSE-14S Test electrical equipment and systems in engineering construction plant</b>
<b>SQA Accreditation unit code: UT49 04</b>	
<b>SCQF level: 7      Credit value:                      10</b>	
<p><b>Unit purpose and aim:</b></p> <p>This unit has been designed to assess learner competence in testing the performance and condition electrical equipment and systems. In the context of this unit, responsibility extends to the interpretation of given specifications, selecting appropriate methods, techniques, choosing and/or modifying procedures to achieve the best possible result in the conditions applying. In some cases, the learner may still be expected to refer to others for final authorisation.</p>	
<p><b>Details of the relationship between the unit and relevant National Occupational Standards or other professional standards or curricula (if appropriate)</b></p> <p>Derived from NOS: ECIMPSM13</p>	

<b>Learning outcomes</b>	<b>Assessment criteria</b>
The candidate will:	The candidate can:
LO1 Understand health and safety legislation, regulations and safe working practices and procedures	K1.1 Explain the requirements of health and safety legislation
	K1.2 Explain the purpose and nature of risk assessments, method statements, and permit to work systems, and the relevance of local procedures and guidance notes
LO2 Understand the work area, material and equipment preparation and reinstatement requirements for testing the	K2.1 Describe preparation and reinstatement requirements in respect of the work area, material, tools and equipment, and the possible consequences of incorrect actions in these areas
	K2.2 Explain the consequences of incorrectly preparing or reinstating the work areas, materials and equipment



<b>Learning outcomes</b> The candidate will:	<b>Assessment criteria</b> The candidate can:
performance and condition of electrical plant and equipment	K2.3 Describe tool and equipment control, the correct use of relevant tools and equipment and their individual responsibility for the use, care and security of those they use
LO3 Understand the tools, terminology, techniques and practices for testing the performance and condition of electrical plant and equipment	K3.1 Explain relevant engineering test specifications and manufacturers' information
	K3.2 Describe how to set up, check the functionality and calibration of the equipment that is being used for testing or monitoring including taking into account environmental conditions
	K3.3 Describe testing and monitoring techniques including the techniques for ingress protection, foreign material exclusion and the impact that different environmental conditions can have
	K3.4 Explain the documentation used to report on test results and test analysis and the importance of correctly recording the test results
LO4 Work safely and minimise risk at all times	S4.1 Identify a range of hazards
	S4.2 Take appropriate action to minimise the risk from hazards
	S4.3 Refer safety related matters to appropriate persons as required
	S4.4 Work in accordance with relevant sections of the Health and Safety at Work Act and its associated regulations
	S4.5 Work in accordance with the requirements of risk assessments and permit to work systems
LO5 Prepare work area, materials and equipment to test the	S5.1 <b>Ensure that the work environment is suitable for the work activities to be undertaken</b>

<b>Learning outcomes</b> The candidate will:	<b>Assessment criteria</b> The candidate can:
performance and condition of electrical plant and equipment	
LO6 Test the performance and condition of electrical plant and equipment	<b>S6.1 Prepare to undertake testing or monitoring:</b> <ol style="list-style-type: none"> <li>a. <b>Ensure they have the correct testing equipment</b></li> <li>b. <b>Prepare the testing equipment</b></li> </ol>
	<b>S6.2 Set up the testing or monitoring equipment:</b> <ol style="list-style-type: none"> <li>a. <b>Check that the calibration is correct</b></li> <li>b. <b>Take the environmental conditions into account</b></li> </ol>
	<b>S6.3</b> Record the results of the assessment in a clear and accurate manner, identifying any faults and variations
	<b>S6.4</b> Analyse and review the test data and compare it, as relevant, against the equipment or system: <ol style="list-style-type: none"> <li>a. Testing data history</li> <li>b. Relevant specification or manufacturers' information</li> </ol>
LO7 Carry out the necessary actions after testing the performance and condition of electrical plant and equipment	<b>S7.1 Reinstate the work area to a safe condition and correctly dispose of waste materials and components</b>

<b>Assessment requirements or guidance specified by a sector regulatory body (if appropriate)</b>	<p>Assessment of this unit will be by occupationally competent assessors approved by an awarding body. They will gather sufficient evidence of competence from work-based activities on suitable engineering construction industry sites or realistic workplace environment.</p> <p>Assessment criteria may be satisfied by observation, questioning, expert witness testimony, professional discussion or any other approved method.</p>
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	<p><b>Mandatory workplace observation is required for assessment criteria S5.1, S6.1, S6.2 &amp; S7.1</b> which may take the form of an expert witness testimony supported by photographic and/or video evidence.</p> <p>Further guidance on this ECITB unit can be found in the SQA Accreditation ECITB Assessment Strategy document.</p>
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