

UNIT PACK

Level 6 Diploma in Electrical Power Engineering (2343) [46-49]

December 2013 Version 1.1



Qualification at a glance

Subject area	Electrical Power Engineering
City & Guilds number	2343
Age group approved	16-18, 19+
Entry requirements	N/a
Assessment	Portfolio
Support materials	Centre handbook Unit pack
Registration and certification	Consult the Walled Garden/Online Catalogue for last dates

Title and level	City & Guilds number	SQA Accreditation number
Diploma for Electrical Power Engineering (Overhead Linesperson) at SCQF Level 6	2339-46	TBC
Diploma for Electrical Power Engineering (Fitter) at SCQF Level 6	2339-47	TBC
Diploma for Electrical Power Engineering (Jointer) at SCQF Level 6	2339-48	TBC
Diploma for Electrical Power Engineering (Technician) at SCQF Level 6	2339-49	TBC

Date and version number	Change detail	Section
February 2016 V1.1	Change in the City & Guilds Group statement	Useful contacts
	Phone numbers deleted	Useful contacts



Contents

1	Introduction	5
	Structure	6
2	Units	12
Unit 201	Comply with health and safety statutory regulations and organisational requirements	13
Unit 214	Access, movement and egress of high voltage overhead line work areas	16
Unit 223	Inspection and maintenance of battery systems	20
Unit 224	Install substation earthing	24
Unit 228	Access, movement and egress of high voltage substation work areas	28
Unit 302	Minimise risk to life, property and the environment	31
Unit 303	Control of working parties	35
Unit 304	Co-ordinate mechanical movement of power plant and apparatus	39
Unit 306	High voltage switching operations	43
Unit 307	Install overhead line plant and equipment	47
Unit 308	Dismantle overhead line plant and equipment	51
Unit 309	Live low voltage overhead lines connections	55
Unit 310	Jointing of overhead line conductors	59
Unit 311	Install overhead line conductors	63
Unit 312	Maintain overhead line plant and equipment	67
Unit 313	Inspection of overhead line routes	71
Unit 315	Low voltage distribution underground cable jointing	75
Unit 316	Low voltage consac underground cable jointing	79
Unit 317	High voltage distribution underground cable jointing	83
Unit 318	High voltage polymeric transmission cable jointing	87
Unit 319	High voltage pressurised transmission cable jointing	91
Unit 321	Dismantle substation plant and apparatus	95
Unit 322	Maintain substation switchgear	99
Unit 325	Fault repair of substation plant and apparatus	103
Unit 326	Maintain compressed air systems	107
Unit 327	Co-ordinate work activities on plant and apparatus	111
Unit 329	Develop yourself in the work role	115
Unit 330	Organise the use of resources for work on power networks	118
Unit 331	Produce, communicate and record technical information for work on power networks	121
Unit 332	Low voltage substation switching operations	124

Unit 333	Diagnostic testing and fault finding on power networks	128
Unit 334	Protection testing on overcurrent and earth fault schemes	132
Unit 335	Pressure testing of high voltage distribution equipment	136
Unit 336	Install supervisory control and data acquisition (SCADA) systems	140
Unit 337	Install protective relays and metering equipment	144
Unit 338	Install high voltage current transformer metering equipment	148
Unit 339	Diagnose faults on compressed air systems	152
Unit 340	Low voltage cable fault location and diagnosis	156
Unit 341	Fibre optic fusion splicing and terminations	160
Unit 342	Phasing out of high voltage cables	164
Unit 343	Inspect and maintain oil and gas filled cable systems	168
Unit 344	Low voltage overhead line switching operations	172
Unit 345	Overhead line fault diagnosis	176
Unit 346	High voltage live line operations using insulated rods	180
Unit 347	High voltage hot stick operations	184
Unit 348	Hot glove operations	188
Unit 349	Install overhead line apparatus on steel tower structures	192
Unit 349	Install overhead line apparatus on steel tower structures	195
Unit 350	Fault repair of overhead line apparatus on steel tower structures	196
Unit 351	Earthing of overhead line transmission conductors	200
Unit 352	Erection of steel tower structures	204
Unit 353	Maintain power transformers	207
Unit 354	Maintain supervisory control and data acquisition (SCADA) systems	211
Unit 355	Electrical testing of power equipment	215
Unit 356	Install substation plant and apparatus	219
Appendix 1	Sources of general information	223



1 Introduction

This document tells you what you need to do to deliver the qualifications:

Area	Description
Who are the qualifications for?	They are for learners who work or want to work as either Jointers, Fitters, Overhead Linesperson's or Technician's in the power sector
What do the qualifications cover?	They allow learners to learn, develop and practise the skills required for employment and/or career progression in the power sector covering a wide range of units from live low voltage overhead line connections and the installation of substation plant and apparatus to controlling working parties and producing, communicating and recording technical information for work on power networks
Are the qualifications part of a framework or initiative?	They serve as competence based qualifications for the Modern Apprenticeship, in the EU Skills Apprenticeship framework.
Who did we develop the qualification with?	They were developed in association with EU Skills and with power sector employers in Scotland.
What opportunities for progression are there?	They allow learners to progress into employment within the Power sector from a Fitter to a Technician.

Structure

To achieve the **Diploma for Electrical Power Engineering (Overhead Linesperson) at SCQF Level 6**, learners must achieve **21** credits from the mandatory group, a minimum of **14** credits from mandatory optional group A and a minimum of **13** credits from mandatory optional group B (group B1). Learners can make up the remaining credits from either optional group A, B or C to total a minimum of **81** credits.

To achieve the **Diploma for Electrical Power Engineering (Fitter) at SCQF Level 6**, learners must achieve **21** credits the mandatory group, a minimum of **14** credits from mandatory optional group A and a minimum of **16** credits from mandatory optional group B (group B2). Learners can make up the remaining credits from either optional group A, B or C to total a minimum of **81** credits.

To achieve the **Diploma for Electrical Power Engineering (Jointer) at SCQF Level 6**, learners must achieve **21** credits the mandatory group, a minimum of **14** credits from mandatory optional group A and a minimum of **15** credits from mandatory optional group B (group B3). Learners can make up the remaining credits from either optional group A, B or C to total a minimum of **81** credits.

To achieve the **Diploma for Electrical Power Engineering (Technician) at SCQF Level 6**, learners must achieve **21** credits the mandatory group, a minimum of **14** credits from mandatory optional group A and a minimum of **15** credits from mandatory optional group B (group B4). Learners can make up the remaining credits from either optional group A, B or C to total a minimum of **81** credits.

Unit accreditation number	City & Guilds unit number	Unit title	Credit value	Unit Level
Mandatory				
UF17 04	201	Comply with statutory regulations and organisational safety requirements	7	5
UF33 04	302	Minimise risk to life, property and the environment	14	6
Optional A				
UF19 04	303	Control of working parties	14	6

UF20 04	327	Coordinate work activities on plant and apparatus	17	6
Optional B				
Overhead Linesperson B1				
UF26 04	307	Install overhead line plant and equipment	16	6
UF31 04	312	Maintain overhead plant and equipment	13	6
Fitter B2				
TBC	320	Install substation plant and apparatus	17	6
UF41 04	322	Maintain substation switchgear	16	6
Jointer B3				
UF34 04	315	Low voltage distribution cable jointing	15	6
UF36 04	317	High voltage distribution underground cable jointing	15	6
Technician B4				
UF34 04	315	Low voltage distribution cable jointing	15	6
UF36 04	317	High voltage distribution underground cable jointing	15	6
Optional C				
UF33 04	214	Access, movement and egress of high voltage overhead line work areas	1	5

UF42 04	223	Inspection and maintenance of battery systems	7	5
UF43 04	224	Install substation earthing	7	5
UF46 04	228	Access, movement and egress of high voltage substation work areas	1	5
UF23 04	304	Coordinate the mechanical movement of power plant and apparatus	14	6
UF25 04	306	High voltage switching operations	11	6
UF26 04	307	Install overhead line plant and equipment	16	6
UF27 04	308	Dismantle overhead line plant and equipment	16	6
UF28 04	309	Live low voltage overhead line connections	15	6
UF29 04	310	Jointing overhead line conductors	13	6
UF30 04	311	Install overhead line conductors	13	6
UF31 04	312	Maintain overhead plant and equipment	13	6
UF32 04	313	Inspection of overhead line routes	6	6
UF34 04	315	Low voltage distribution cable jointing	15	6

UF35 04	316	Low voltage consec underground cable jointing	15	6
UF36 04	317	High voltage distribution underground cable jointing	15	6
UF37 04	318	High voltage polymeric transmission cable jointing	15	6
UF38 04	319	High voltage pressurised transmission cable jointing	15	6
UF41 04	321	Dismantle substation plant and apparatus	17	6
UF44 04	322	Maintain substation switchgear	16	6
UF45 04	325	Fault repair of substation plant and apparatus	18	6
UF20 04	326	Maintain compressed air systems	16	6
UF46 04	228	Access, movement and egress of high voltage substation work areas	1	5
UF47 04	329	Develop yourself in the work role	6	6
UF21 04	330	Organise the use of resources for work on power networks	17	6
UF22 04	331	Produce, communicate and record technical information for work on power networks	15	6

UF48 04	332	Low voltage sub-station switching operations	11	6
UF49 04	333	Diagnostic testing and fault finding on power networks	16	6
UF50 04	334	Protection testing on overcurrent and earth fault schemes	16	6
UF51 04	335	Pressure testing of high voltage distribution equipment	16	6
UF52 04	336	Install supervisory control and data acquisition (SCADA) systems	4	6
UF53 04	337	Install protective relays and metering equipment	4	6
UF54 04	338	Install high voltage current transformer metering equipment	4	6
UF55 04	339	Diagnose faults on compressed air systems	10	6
UF56 04	340	Low voltage cable fault location and diagnosis	13	6
UF57 04	341	Fibre optic fusion splicing and terminations	4	6
UF58 04	342	Phasing out of high voltage cables	15	6
UF59 04	343	Inspect and maintain oil and gas filled cable systems	7	6
UF60 04	344	Low voltage overhead line switching operations	11	6

UF61 04	345	Overhead line fault diagnosis	13	6
UF62 04	346	High voltage Live line operations using insulated rods	4	6
UF63 04	347	Hot stick operations	4	6
UF64 04	348	Hot glove operations	15	6
UF65 04	349	Install overhead line apparatus on steel tower structures	13	6
UF66 04	350	Fault repair of overhead line apparatus on steel tower structures	13	6
UF67 04	351	Earthing of overhead line transmission conductors	15	6
UF68 04	352	Erection of steel tower structures	10	6
UF69 04	353	Maintain power transformers	16	6
UF70 04	354	Maintain supervisory control and data acquisition (SCADA) systems	16	6
UF24 04	355	Electrical testing of power equipment	15	6
UF40 04	356	Install substation plant and apparatus	17	6



2 Units

Structure of units

These units each have the following:

- City & Guilds reference number
- unit accreditation number (UAN)
- title
- level
- credit value
- guided learning hours
- unit aim
- information on assessment
- learning outcomes which are comprised of a number of assessment criteria
- notes for guidance.

Unit 201

Comply with health and safety statutory regulations and organisational requirements

UAN:	UF17 04
Level:	5
Credit value:	7
GLH:	42
Assessment requirements specified by a sector or regulatory body:	This unit is endorsed by EU Skills
Aim:	This unit is about rigorously applying and maintaining organisational processes and procedures to ensure compliance with statutory health and safety regulations and organisational safety rules and policies. It involves the application of knowledge to identify and support the control of hazards to maintain a safe working environment for yourself and others when working in an electrical power environment.

Learning outcome
The learner will: 1. know health and safety statutory regulations and organisational requirements
Assessment criteria
The learner can: 1.1 state the roles and responsibilities of employees and employers in relation to health and safety 1.2 state regulations and safe working practices and procedures 1.3 describe what constitutes a hazard in the workplace 1.4 state risks and employee responsibilities for reducing risks in the workplace 1.5 describe processes and procedures that are used to identify and rate the level of risk 1.6 state the organisational procedures for accidents, incidents and emergencies to include: a) fire b) injury to self and others c) threat of terrorism d) hazardous occurrences and near misses 1.7 state the range of Personal Protective Equipment (PPE) required for

<p>the job role</p> <p>1.8 state the organisational requirements for the safe and secure storage of tools, equipment and materials</p> <p>1.9 describe the limitations of own job responsibility and reporting procedures for any work related problems.</p>
--

<p>Learning outcome</p> <p>The learner will:</p> <p>2. be able to comply with health and safety statutory regulations and organisational requirements</p>
<p>Assessment criteria</p> <p>The learner can:</p> <p>2.1 work in accordance with statutory regulations and organisational requirements specific to job role including:</p> <ul style="list-style-type: none"> a) maintaining a tidy workplace, with exits and gangways free from obstruction b) using equipment safely and for the purpose intended c) observing organisational safety rules, signs and hazard warnings d) taking measures to protect self and others from harm <p>2.2 identify warning signs and labels from the main groups of hazardous substances</p> <p>2.3 identify qualified first aiders and the location of first aid facilities</p> <p>2.4 select and wear Personal Protective Equipment (PPE) required for the job role</p> <p>2.5 identify and control hazards for the following:</p> <ul style="list-style-type: none"> a) within the working environment b) when using equipment c) when using material and substances <p>2.6 carry out methods of manual lifting and carrying for the following:</p> <ul style="list-style-type: none"> a) when lifting alone b) with assistance of others c) with mechanical assistance.

Unit 201 Comply with health and safety statutory regulations and organisational requirements

Supporting information

Guidance

Examples of relevant documents –

- Management of Health and Safety At Work Regulations
- Workplace Health and Safety and Welfare Regulations
- Personal Protective Equipment at Work Regulations
- Manual Handling Operations Regulations
- Provision and Use of Work Equipment Regulations
- Reporting of Injuries, Diseases and Dangerous Occurrences Regulations
- ESQCR Electricity, Electricity at Work Regulations
- CoSHH Control of Substances Hazardous to Health
- Company Safety Rules
- Company Policies and Procedures

During the assessment the learner will:

1. comply with the appropriate statutory regulations at all times
2. present themselves in the workplace suitably prepared for the activities to be undertaken
3. follow organisational accident and emergency procedures
4. follow organizational procedures in the event of fire and the evacuation of premises

Work related problems: hazardous malfunctions of plant and equipment.

Unit 214

Access, movement and egress of high voltage overhead line work areas

UAN:	UF33 04
Level:	5
Credit value:	1
GLH:	9
Assessment requirements specified by a sector or regulatory body:	This unit is endorsed by EU Skills
Aim:	This unit is about being able to safely enter, move around and exit overhead line work environments. It involves rigorously complying with organisational safety rules and procedures and using knowledge to support the recognition and avoidance of hazards. It also involves carrying out inspections of site conditions and making judgements on what actions need to be taken to maintain the safety of yourself and others in an electrical power utilities environment.

Learning outcome
The learner will: 1. understand organisational procedures and legislative requirements to access, move around and egress high voltage overhead line work areas
Assessment criteria
The learner can: 1.1 state the main principles of health and safety legislation and regulations applicable to work on power networks 1.2 state the roles and responsibilities of employees and employers in relation to organisational procedures and legislative requirements 1.3 describe the limitations of own job responsibility and reporting procedures for any work related problems 1.4 state the hazards to be considered when planning to access, move around and egress high voltage overhead line work areas 1.5 state the organisational procedures for accidents, incidents and emergencies to include: a) fire b) injury to self and others c) threat of terrorism

<p>d) hazardous occurrences and near misses</p> <p>1.6 state the organisational procedures that need to be complied with when accessing, moving around and egressing high voltage overhead line work areas</p> <p>1.7 state the processes and procedures that need to be complied with when receiving a safety document.</p>
--

Learning outcome
<p>The learner will:</p> <p>2. be able to plan and prepare to access, move around and egress high voltage overhead line work areas</p>
Assessment criteria
<p>The learner can:</p> <p>2.1 identify the high voltage overhead line work area to be accessed using organisational documentation and work instructions</p> <p>2.2 apply organisational work documentation to identify the activity to be carried out</p> <p>2.3 plan the activities required to access, move around and egress the high voltage overhead line work area</p> <p>2.4 carry out a site specific risk assessment in accordance with health and safety regulations</p> <p>2.5 select and wear Personal Protective Equipment (PPE) required for the job role</p> <p>2.6 inform those who will be directly and indirectly affected by the planned activities</p>

Learning outcome
<p>The learner will:</p> <p>3. be able to access, move around and egress high voltage overhead line work areas</p>
Assessment criteria
<p>The learner can:</p> <p>3.1 access and move around the high voltage overhead line work area in line with organisational procedures</p> <p>3.2 implement the work plan in line with organisational procedures to meet safe control system requirements</p> <p>3.3 egress the high voltage overhead line work area in line with the work plan and organisational procedures</p> <p>3.4 resolve problems within the limits of own job role responsibility</p> <p>3.5 report problems outside the limits of own responsibility to designated personnel</p>

Learning outcome
<p>The learner will:</p> <p>4. be able to leave the high voltage overhead line work area in a safe condition in accordance with legislation and Company procedures</p>
Assessment criteria
<p>The learner can:</p>

- 4.1 store tools and equipment on completion of work activity
- 4.2 check the safe condition of the work area

Unit 214

Access, movement and egress of high voltage overhead line work areas

Supporting information

Evidence requirements

You must provide your assessor with evidence for all the learning outcomes and assessment criteria. The evidence must be provided in the following ways taking into account any of the special considerations below.

You need to provide evidence to show that you have accessed, moved around and egressed:

- **two** separate Overhead Line work areas

Guidance

3.1 Control measures may include –safety documentation, informing others of presence, signs / barriers, demarcation, control/removal of hazards

Unit 223

Inspection and maintenance of battery systems

UAN:	UF42 04
Level:	5
Credit value:	7
GLH:	66
Assessment requirements specified by a sector or regulatory body:	This unit is endorsed by EU Skills
Aim:	This unit is about inspecting and maintaining battery systems in an electrical power engineering environment. It involves the rigorous application of organisational processes and procedures to ensure the work is carried out safely and the identification and control of hazards. It also involves the use of inspection techniques, test equipment and tools to carry out and record maintenance operations in line with organisational requirements.

Learning outcome
The learner will: 1. understand organisational procedures and legislative requirements for the inspection and maintenance of battery systems
Assessment criteria
The learner can: 1.1 describe the main principles of health and safety legislation and regulations applicable to inspection and maintenance of battery systems 1.2 describe roles and responsibilities of employees and employers in relation to organisational procedures and legislative requirements 1.3 explain the limitations of own job responsibility and reporting procedures for any work related problems 1.4 explain the hazards to be considered when planning to inspect and maintain battery systems 1.5 explain what materials and substances are hazardous to health in relation to job role 1.6 describe the organisational procedures for accidents, incidents and emergencies to include: a) fire b) injury to self and others c) threat of terrorism

d) hazardous occurrences and near misses 1.7 explain the organisational procedures that need to be complied with when inspecting and maintaining battery system.

Learning outcome
The learner will: 2. be able to plan and prepare to inspecting and maintaining battery systems
Assessment criteria
The learner can: 2.1 identify the work location using organisational documentation and work instructions 2.2 apply organisational work documentation to identify the work activity 2.3 plan the activities required to inspect and maintain battery systems 2.4 carry out a site specific risk assessment in accordance with health and safety regulations 2.5 select and wear Personal Protective Equipment (PPE) required for the job role 2.6 inspect suitable tools and equipment for use in line with organisational procedures 2.7 identify the battery system to be inspected in line with organisational procedures 2.8 inform those who will be directly and indirectly affected by the intended work plan.

Learning outcome
The learner will: 3. be able to carry out the inspection and maintenance of battery systems
Assessment criteria
The learner can: 3.1 confirm the system is safe to work on in accordance with organisational procedures 3.2 implement control measures in line with organisational procedures to meet safe control requirements 3.3 inspect and maintain battery systems in line with work plan and organisational procedures 3.4 carry out testing operations in line with organisational procedures 3.5 monitor control measures to ensure risks are minimised 3.6 confirm the finished work meets organisational requirements and quality standards 3.7 record the results of the work implemented in accordance with organisational procedures 3.8 resolve problems within the limits of own job role responsibility 3.9 report problems outside the limits of own responsibility to designated personnel.

Learning outcome
The learner will: 4. be able to leave the work area in a safe condition according to required regulation and legislation
Assessment criteria
The learner can: 4.1 store tools and test equipment on completion of work activity 4.2 check the safe condition of the work area.

Unit 223 Inspection and maintenance of battery systems

Supporting information

Evidence requirements

You must provide your assessor with evidence for all the learning outcomes and assessment criteria. The evidence must be provided in the following ways taking into account any of the special considerations below.

You will need to provide evidence to show that over at least **two** different occasions you have carried out **three** of the following testing procedures:

- Battery voltage/current
- Cell specific gravity
- Discharge
- Battery charger
- Another relevant testing procedure
- Conductance

Guidance

2.7 Select tools – to include an inspection of condition e.g. insulation

3.2 Control measures may include – identifying points of isolation, barriers, venting and purging

UAN:	UF43 04
Level:	5
Credit value:	7
GLH:	66
Assessment requirements specified by a sector or regulatory body:	This unit is endorsed by EU Skills
Aim:	This unit is about the installation of substation earthing in an electricity power utilities environment. It involves the rigorous application of organisational processes and procedures to ensure that work is carried out safely. It also involves the use of tools to carry out the installation and test equipment to confirm the completed installation meets the operational requirements set by the organisation.

Learning outcome
The learner will: 1. understand the statutory regulations and procedures to install substation earthing
Assessment criteria
The learner can: 1.1 describe the main principles of health and safety legislation and regulations relating to work on substation plant and apparatus 1.2 describe roles and responsibilities of employees and employers in relation to organisational procedures and legislative requirements 1.3 explain the limitations of own job responsibility and reporting procedures for any work related problems 1.4 explain the hazards to be considered when planning to install substation earthing 1.5 explain what materials and substances are hazardous to health in relation to job role 1.6 describe the organisational procedures for accidents, incidents and emergencies to include: a) fire b) injury to self and others c) threat of terrorism d) hazardous occurrences and near misses 1.7 explain the organisational procedures that need to be complied with when installing substation earthing

1.8 explain the processes and procedures that need to be complied with when receiving a safety document.

Learning outcome

The learner will:

2. be able to plan and prepare to install substation earthing

Assessment criteria

The learner can:

- 2.1 identify the work location using organisational documentation and work instructions
- 2.2 apply organisational work documentation to identify the work activity
- 2.3 plan the activities required for installing substation earthing
- 2.4 carry out a site specific risk assessment in accordance with health and safety regulations
- 2.5 select and wear personal protective equipment (PPE) required for the job role
- 2.6 identify and carry out a pre work inspection of the substation equipment to be earthed in line with organisational procedures
- 2.7 select suitable tools and equipment required to install substation earthing
- 2.8 inform those who will be directly and indirectly affected by the intended work plan.

Learning outcome

The learner will:

3. be able to install substation earthing

Assessment criteria

The learner can:

- 3.1 confirm the system is safe to work on in accordance with organisational procedures
- 3.2 implement control measures in line with organisational procedures to meet safe control system requirements
- 3.3 install substation earthing in line with work plan and organisational procedures
- 3.4 monitor control measures to ensure risks are minimised
- 3.5 confirm the finished work meets organisational requirements and quality standards
- 3.6 carry out earth testing procedures in line with work plan and organisational procedures
- 3.7 record the results of the work implemented in accordance with organisational procedures
- 3.8 resolve problems within the limits of own job role responsibility
- 3.9 report problems outside the limits of own responsibility to

designated personnel.

Learning outcome

The learner will:

4. be able to leave the work area in a safe condition according to required regulation and legislation

Assessment criteria

The learner can:

- 4.1 store tools and test equipment on completion of work activity
- 4.2 dispose of waste materials
- 4.3 check the safe condition of the work area.

Unit 224 Install substation earthing

Supporting information

Evidence requirements

You must provide your assessor with evidence for all the learning outcomes and assessment criteria. The evidence must be provided in the following ways taking into account any of the special considerations below.

You will need to provide evidence to show that you have:

1. Co-ordinated and carried out the installation of substation earthing on a minimum of **two** separate occasions

Guidance

2.7 Select and check - to include inspection of tools and equipment

3.1 points to be considered

- points of isolation
- earthing arrangements
- drain
- vent
- purge

3.2 Control measures may include

- receipt of a safety document
- points of isolation
- earthing arrangements
- drain
- vent
- purge

Unit 228

Access, movement and egress of high voltage substation work areas

UAN:	UF46 04
Level:	5
Credit value:	1
GLH:	9
Assessment requirements specified by a sector or regulatory body:	This unit is endorsed by EU Skills
Aim:	This unit is about being able to safely enter, move around and exit electrical substation environments. It involves rigorously complying with organisational safety rules and procedures and using knowledge to support the recognition and avoidance of hazards. It also involves carrying out inspections of site conditions and making judgements on what actions need to be taken to maintain the safety of yourself and others in an electrical power environment.

Learning outcome
The learner will: 1. understand the statutory regulations and procedures required to access, move around and egress high voltage substation work areas
Assessment criteria
The learner can: 1.1 describe the main principles of health and safety legislation and regulations applicable to high voltage substation work areas 1.2 describe roles and responsibilities of employees and employers in relation to organisational procedures and legislative requirements 1.3 explain the limitations of own job responsibility and reporting procedures for any work related problems 1.4 explain the hazards to be considered when planning to access, move around and egress a high voltage substation work area 1.5 describe the organisational procedures for accidents, incidents and emergencies to include: a) fire b) injury to self and others c) threat of terrorism d) hazardous occurrences and near misses 1.6 explain the organisational procedures that need to be complied

<p>with when accessing, moving around and egressing high voltage substation work areas</p> <p>1.7 describe the organisational procedures for demarcating a substation work area and the route to and from the work area</p> <p>1.8 explain the processes and procedures that need to be complied with when receiving a safety document.</p>

Learning outcome
<p>The learner will:</p> <p>2. be able to plan and prepare to access, move around and egress high voltage substation work areas</p>
Assessment criteria
<p>The learner can:</p> <p>2.1 identify the substation using company documentation and work instructions</p> <p>2.2 apply organisational work documentation to identify the activity to be carried out</p> <p>2.3 plan the activities required for access and egress within high voltage substation work areas</p> <p>2.4 carry out a site specific risk assessment in accordance with health and safety regulations</p> <p>2.5 select and wear Personal Protective Equipment (PPE) required for the job role</p> <p>2.6 inform those who will be directly and indirectly affected by the intended work plan.</p>

Learning outcome
<p>The learner will:</p> <p>3. be able to access, move around and egress high voltage substation work areas</p>
Assessment criteria
<p>The learner can:</p> <p>3.1 implement control measures in line with organisational procedures to meet safe control system requirements</p> <p>3.2 access, move around and egress substation work areas in line with organisational procedures</p> <p>3.3 monitor control measures to ensure risks are minimised</p> <p>3.4 resolve problems within the limits of own job role responsibility</p> <p>3.5 report problems outside the limits of own responsibility to designated personnel.</p>

Learning outcome
<p>The learner will:</p> <p>4. be able to leave the work area in a safe condition according to required regulation and legislation</p>
Assessment criteria
<p>The learner can:</p> <p>4.1 store tools and equipment on completion of work activity</p> <p>4.2 check the safe condition of the work area.</p>

Unit 228

Access, movement and egress of high voltage substation work areas

Supporting information

Evidence requirements

You must provide your assessor with evidence for all the learning outcomes and assessment criteria. The evidence must be provided in the following ways taking into account any of the special considerations below.

You need to provide evidence to show that you have accessed, moved around and egressed:

- **two** separate substation work areas

Guidance

3.1 Control measures may include –safety documentation, informing others of presence, signs / barriers, demarcation, control/removal of hazards

Unit 302

Minimise risk to life, property and the environment

UAN:	UF18 04
Level:	6
Credit value:	14
GLH:	75
Assessment requirements specified by a sector or regulatory body:	This unit is endorsed by EU Skills
Aim:	This unit is about minimising risks to life, property and the environment when operating in a power utility engineering environment. It involves rigorously complying with organisational safety rules, processes and procedures and the identification and control of hazards. It also involves organising, communicating and coordinating the activities of others to establish and maintain a safe working environment.

Learning outcome
The learner will: 1. understand the statutory regulations and procedures to minimise risk to life, property and the environment
Assessment criteria
The learner can: 1.1 describe roles and responsibilities of employees and employers in relation to health and safety 1.2 describe regulations and safe working practices and procedures in own role 1.3 identify warning signs and labels from the main groups of hazardous substances 1.4 explain what materials and substances are hazardous to health in relation to job role 1.5 explain what constitutes a hazard in the workplace 1.6 describe the statutory regulations and procedures for minimising risks in relation to: a) fire b) injury to self and others c) threat of terrorism d) the environment.

Learning outcome
The learner will: 2. be able to plan and prepare control measures to minimise risk to life, property and the environment
Assessment criteria
The learner can: 2.1 identify the work location using company documentation and work instructions 2.2 apply company work documentation to identify the work activity 2.3 carry out a site specific risk assessment in accordance with health and safety regulations 2.4 plan control measures to minimise risk to life, property and the environment 2.5 select and wear Personal Protective Equipment (PPE) required for the job role 2.6 inform those who will be directly and indirectly affected by the intended work plan 2.7 communicate to group members assigned tasks and responsibilities to minimise identified risks.

Learning outcome
The learner will: 3. be able to co-ordinate control measures to minimise risk to life, property and the environment
Assessment criteria
The learner can: 3.1 implement the work plan to minimise identified risks 3.2 monitor control measures to ensure risks are minimised 3.3 record the control measures implemented in accordance with company procedures 3.4 provide information to update safety systems records 3.5 resolve problems within the limits of own job role responsibility 3.6 report problems outside the limits of own responsibility to designated personnel.

Learning outcome
The learner will: 4. be able to leave the work area in a safe condition according to required regulation and legislation
Assessment criteria
The learner can: 4.1 store tools and test equipment on completion of work activity

- 4.2 dispose of waste materials and hazardous substances
- 4.3 check the safe condition of the work area.

Unit 302 Minimise risk to life, property and the environment

Supporting information

Evidence requirements

You must provide your assessor with evidence for all the learning outcomes and assessment criteria. The evidence must be provided in the following ways taking into account any of the special considerations below.

You will need to provide evidence to show that on at least **two** different occasions you carried out **all** of the following:

- Planned to minimise risk to life, property and the environment
- Determined priorities and monitored risk to life, property and the environment
- Leave the work area in a safe condition
- Used and communicated data and information
- Resolved problems effectively and efficiently.

Guidance

The evidence may be generated during normal working activities and may include examples of disposal of waste from work activities including packaging and crates, processing of insulating oil, SF6 handling, fuelling and the application and deployment of spill kits.

Candidates should be able to confirm the system to be worked on is safe to work on, including points of isolation and earthing arrangements where applicable, in accordance with company procedures.

Where required candidates should be able to provide guidance to others in ways of minimising risks to life, property and the environment and be able to clarify the impact and implications of measures.

Select: Assessors need to ensure learners inspect PPE is fit for purpose i.e. dates and free from defects.

Others: visitors, general public, co-workers

Arrangements for reinstating

UAN:	UF19 04
Level:	6
Credit value:	14
GLH:	75
Assessment requirements specified by a sector or regulatory body:	This unit is endorsed by EU Skills
Aim:	This unit is about organising and controlling the working activities of other persons working in power utility engineering environments. It involves rigorously complying with and enforcing organisational safety rules and operational procedures. It requires the identification of hazards and the planning and implementation of the control measures to deal with them. It also involves planning organising and monitoring the progress of work, giving instruction to others and recording the work activity in line with organisational requirements.

Learning outcome
The learner will: 1. understand the statutory regulations and procedures required for the control of working parties
Assessment criteria
The learner can: 1.1 describe roles and responsibilities of employees and employers in relation to health and safety 1.2 describe the organisational procedures for the control of working parties 1.3 describe the documentation required for controlling a working party 1.4 describe the authorisations required for controlling a working party 1.5 explain the limitations of own job responsibility and reporting procedures for any work related problems 1.6 describe the range of Personal Protective Equipment (PPE) required for the work group activities 1.7 explain the processes and procedures that need to be complied with when receiving a safety document.

Learning outcome

The learner will: 2. be able to plan and prepare to control a working party
Assessment criteria
The learner can: 2.1 identify the work location using company documentation and work instructions 2.2 apply company work documentation to identify the work activity 2.3 carry out a site specific risk assessment in accordance with health and safety regulations 2.4 plan control measures to minimise risk to life, property and the environment 2.5 plan the activities required to control the working party 2.6 select and wear Personal Protective Equipment (PPE) required for the job role 2.7 inform those who will be directly and indirectly affected by the intended work plan 2.8 communicate to group members assigned tasks and responsibilities.

Learning outcome
The learner will: 3. be able to control work activities of a working party
Assessment criteria
The learner can: 3.1 confirm the system is safe to work on in accordance with organisational procedures 3.2 implement the work plan in line with organisational procedures to meet safe control system requirements 3.3 monitor the progress of the work plan and control measures to ensure risks are minimised 3.4 instruct the working party to ensure the assigned work is conducted in accordance with the work plan and organisational procedures 3.5 confirm the finished work meets organisational requirements and quality standards 3.6 record the results of the work implemented in accordance with organisational procedures 3.7 provide information to update safety systems records 3.8 resolve problems within the limits of own job role responsibility 3.9 report problems outside the limits of own responsibility to designated personnel.

Learning outcome
The learner will: 4. be able to leave the work area in a safe condition according to required regulation and legislation
Assessment criteria
The learner can: 4.1 store tools and test equipment on completion of work activity

- 4.2 dispose of waste materials and hazardous substances
- 4.3 check the safe condition of the work area.

Unit 303 Control of working parties

Supporting information

Evidence requirements

You must provide your assessor with evidence for all the learning outcomes and assessment criteria. The evidence must be provided in the following ways taking into account any of the special considerations below.

You will need to provide evidence to show that on at least **two** different occasions you carried out **all** of the following:

- Received relevant company safety documentation
- Carried out the briefing of the working party
- Carried out the management of the working party during work activities
- Controlled the withdrawal of the working party
- Clearing of relevant company safety documentation

Guidance

Examples of relevant supporting evidence: method statements, working party register, site plans, copy of safety document, Company risk/ hazard assessment documentation.

Team: one or more

Safe Condition – Barriers, Access Gates, Scaffold, Ladders, Signing and Guarding, Trench Support, etc

3.1 points to be considered

- points of isolation
- earthing arrangements
- drain
- vent
- purge

Unit 304

Co-ordinate mechanical movement of power plant and apparatus

UAN:	UF23 04
Level:	6
Credit value:	14
GLH:	75
Assessment requirements specified by a sector or regulatory body:	This unit is endorsed by EU Skills
Aim:	This unit is about co-ordinating and controlling work activities when using mechanical equipment to move power utility plant and / or apparatus. It involves detailed organisation and planning of the movement of loads and rigorous compliance with the relevant statutory regulations and organisational policies and procedures. It also involves monitoring and co-ordinating the progress of the lifting / moving operation and giving instruction to others to ensure a safe working environment is maintained.

Learning outcome
The learner will: 1. understand organisational procedures and legislative requirements for the mechanical movement of power plant and apparatus
Assessment criteria
The learner can: 1.1 describe the main principles of health and safety legislation and regulations applicable to work on power networks 1.2 describe roles and responsibilities of employees and employers in relation to organisational procedures and legislative requirements 1.3 explain the limitations of own job responsibility and reporting procedures for any work related problems 1.4 explain the hazards to be considered when planning the movement of power plant and apparatus 1.5 describe the organisational procedures for accidents, incidents and emergencies to include: a) fire b) injury to self and others c) threat of terrorism d) hazardous occurrences and near misses

1.6 explain the organisational procedures that need to be complied with when using mechanical lifting equipment (8.3).

Learning outcome
The learner will: 2. be able to plan and prepare for the mechanical movement of power plant and apparatus
Assessment criteria
The learner can: 2.1 identify the work location using company documentation and work instructions 2.2 carry out a site specific risk assessment in accordance with health and safety regulations 2.3 select and wear Personal Protective Equipment (PPE) required for the job role 2.4 identify the key factors when lifting and moving power plant and apparatus 2.5 establish a method for lifting and moving according to organisational procedures for the following: a) size b) weight c) stability 2.6 plan the activities required to mechanically move power plant and apparatus 2.7 inform those who will be directly and indirectly affected by the intended work plan 2.8 communicate to group members assigned tasks and responsibilities.

Learning outcome
The learner will: 3. be able to co-ordinate the mechanical movement of power plant and apparatus
Assessment criteria
The learner can: 3.1 implement control measures in line with company procedures to meet safe systems of work 3.2 monitor control measures when lifting and moving power plant and apparatus to ensure risks are minimised 3.3 check the load is located in accordance with the work plan 3.4 resolve problems within the limits of own job role responsibility 3.5 report problems outside the limits of own responsibility to designated personnel.

Learning outcome
The learner will: 4. be able to leave the work area in a safe condition according to required regulation and legislation
Assessment criteria
The learner can: 4.1 store tools and test equipment on completion of work activity 4.2 dispose of waste materials and hazardous substances 4.3 check the safe condition of the work area.

Unit 304 Co-ordinate mechanical movement of power plant and apparatus

Supporting information

Evidence requirements

You must provide your assessor with evidence for all the learning outcomes and assessment criteria. The evidence must be provided in the following ways taking into account any of the special considerations below.

You will need to provide evidence to show that on at least **two** different occasions you carried out **all** of the following:

- **one** occasion for the co-ordination of mechanical equipment e.g. tirlfors, hand winches, drum jacks
- **one** occasion for the co-ordination of powered lifting equipment e.g. winches, crane, lorry loader (HIAB)

Guidance

2.4 factors to be considered:

- size
- weight
- stability
- lifting points
- route to be taken
- weather
- traffic
- pedestrian
- barriers
- fencing
- overhead cables
- obstructions

Unit 306

High voltage switching operations

UAN:	UF25 04
Level:	6
Credit value:	11
GLH:	105
Relationship to NOS:	This unit is linked to the
Assessment requirements specified by a sector or regulatory body:	This unit is endorsed by EU Skills
Aim:	This unit is about carrying out high voltage switching operations in a power utilities engineering environment. It includes the rigorous application of processes and procedures to ensure that switching operations are carried out safely and meet the operational standards set by the organisation. It also involves detailed planning, recording and communication of switching operations in line with organisational requirements.

Learning outcome
The learner will: 1. understand organisational procedures and legislative requirements for high voltage switching operations
Assessment criteria
The learner can: 1.1 describe the main principles of health and safety legislation and regulations applicable to work on power networks 1.2 describe roles and responsibilities of employees and employers in relation to organisational procedures and legislative requirements 1.3 explain the limitations of own job responsibility and reporting procedures for any work related problems 1.4 explain the hazards to be considered when planning high voltage switching operations 1.5 describe the organisational procedures for accidents, incidents and emergencies to include: a) fire b) injury to self and others c) threat of terrorism d) hazardous occurrences and near misses 1.6 explain the organisational procedures that need to be complied

<p>with when carrying out high voltage switching operations</p> <p>1.7 explain the processes and procedures that need to be complied with when receiving a safety document.</p>

Learning outcome
The learner will:
2. be able to plan and prepare to carry out high voltage switching operations
Assessment criteria
The learner can:
2.1 identify the work location using organisational documentation and work instructions
2.2 apply organisational work documentation to identify the operational requirements
2.3 plan the activities required to carry out high voltage switching operations
2.4 carry out a site specific risk assessment in accordance with health and safety regulations
2.5 select and wear Personal Protective Equipment (PPE) required for the job role
2.6 select the appropriate tools and equipment required to carry out high voltage switching operations
2.7 inform those who will be directly and indirectly affected by the intended work plan.

Learning outcome
The learner will:
3. be able to carry out high voltage switching operations
Assessment criteria
The learner can:
3.1 inspect the apparatus on which switching operations are to be conducted in accordance with organisational procedures
3.2 confirm the system is safe to be operated on in accordance with organisational procedures
3.3 carry out high voltage switching operations in accordance with organisational procedures
3.4 confirm the completed switching operation has achieved the operational objective
3.5 record the high voltage switching operation in accordance with organisational procedures
3.6 resolve problems within the limits of own job role responsibility
3.7 report problems outside the limits of own responsibility to designated personnel.

Learning outcome
The learner will:
4. be able to leave the work area in a safe condition according to required regulation and legislation
Assessment criteria

The learner can:

- 4.1 store tools and equipment on completion of work activity
- 4.2 check the safe condition of the work area.

Unit 306 High voltage switching operations

Supporting information

Evidence requirements

You must provide your assessor with evidence for all the learning outcomes and assessment criteria. The evidence must be provided in the following ways taking into account any of the special considerations below.

You need to provide evidence to show that you have carried out high voltage switching operations on **three** separate occasions

Guidance

2.4 a site specific risk assessment should take into consideration:

- Apparatus identification
- Apparatus condition
- Environmental conditions – confined spaces, rain, wind, lightning

Unit 307

Install overhead line plant and equipment

UAN:	UF26 04
Level:	6
Credit value:	16
GLH:	98
Assessment requirements specified by a sector or regulatory body:	This unit is endorsed by EU Skills
Aim:	This unit is about installing overhead line plant and apparatus in an electrical power engineering environment. It involves the planning and organisation of resources and following set operational procedures to ensure the system is safe to work on before undertaking installation activities. It also involves using and complying with technical design specifications to ensure the completed installation meets with technical and organisational requirements.

Learning outcome
The learner will: 1. understand organisational procedures and legislative requirements for the installation of overhead line plant and equipment
Assessment criteria
The learner can: 1.1 describe the main principles of health and safety legislation and regulations applicable to work on power networks 1.2 describe roles and responsibilities of employees and employers in relation to organisational procedures and legislative requirements 1.3 explain the limitations of own job responsibility and reporting procedures for any work related problems 1.4 explain the hazards to be considered when planning the installation of overhead line plant and equipment 1.5 describe the organisational procedures for accidents, incidents and emergencies to include: a) fire b) injury to self and others c) threat of terrorism d) hazardous occurrences and near misses 1.6 explain the organisational procedures that need to be complied with when working on overhead line networks

1.7 explain the processes and procedures that need to be complied with when receiving a safety document.

Learning outcome

The learner will:

2. be able to plan and prepare to install overhead line plant and equipment

Assessment criteria

The learner can:

- 2.1 identify the work location using organisational documentation and work instructions
- 2.2 apply organisational work documentation to identify the work activity
- 2.3 plan the activities required for the installation of overhead line plant and equipment
- 2.4 carry out a site specific risk assessment in accordance with health and safety regulations
- 2.5 select and wear Personal Protective Equipment (PPE) required for the job role
- 2.6 identify the power equipment to be installed in line with organisational procedures
- 2.7 select the appropriate tools and equipment required to install the overhead line plant and equipment
- 2.8 inform those who will be directly and indirectly affected by the intended work plan.

Learning outcome

The learner will:

3. be able to carry out the installation of overhead line plant and equipment

Assessment criteria

The learner can:

- 3.1 confirm the system is safe to work on in accordance with organisational procedures
- 3.2 implement the work plan in line with organisational procedures to meet safe control system requirements
- 3.3 carry out the installation work in line with work plan and organisational procedures
- 3.4 confirm the finished work meets organisational requirements and quality standards
- 3.5 record the results of the work implemented in accordance with organisational procedures
- 3.6 resolve problems within the limits of own job role responsibility
- 3.7 report problems outside the limits of own responsibility to

designated personnel.

Learning outcome
The learner will: 4. be able to leave the work area in a safe condition according to required regulation and legislation
Assessment criteria
The learner can: 4.1 store tools and equipment on completion of work activity 4.2 dispose of waste materials and hazardous substances 4.3 check the safe condition of the work area.

Unit 307 Install overhead line plant and equipment

Supporting information

Evidence requirements

You must provide your assessor with evidence for all the learning outcomes and assessment criteria. The evidence must be provided in the following ways taking into account any of the special considerations below.

You need to provide evidence to show that you have carried out installation work within a team on at least **two** different occasions.

Carried out installation of at least **two** different types of the plant listed -

Transmission Range: Conductors, insulators, steelwork fittings, tower furniture, power plant / apparatus

Distribution Range: ABSD, Auto recloser, HV fuses, Cable termination, Sectionaliser.

One of the two in the distribution range must be to have carried out the wiring configuration of a three phase pole mounted transformer on at least **one** occasion.

Guidance

2.4 a site specific risk assessment should take into consideration:

- Stability and condition of structure to be accessed
- Condition of the conductors supported by the structure
- Environmental conditions – rain, wind, lightning

3.1 points to be considered

- points of isolation
- earthing arrangements
- drain
- vent
- purge

Unit 308

Dismantle overhead line plant and equipment

UAN:	UF27 04
Level:	6
Credit value:	16
GLH:	98
Assessment requirements specified by a sector or regulatory body:	This unit is endorsed by EU Skills
Aim:	This unit is about the dismantlement of overhead line plant and apparatus in an electrical power engineering environment. It involves the rigorous application of set procedures and processes to ensure the system is safe to work on and the identification and control of hazards during work activities. It also involves working in a controlled and methodical manner and inspection of the completed dismantlement to ensure it meets with organisational requirements.

Learning outcome
The learner will: 1. understand organisational procedures and legislative requirements to dismantle overhead line plant and equipment
Assessment criteria
The learner can: 1.1 describe the main principles of health and safety legislation and regulations applicable to work at height on overhead line power equipment 1.2 describe roles and responsibilities of employees and employers in relation to organisational procedures and legislative requirements 1.3 explain the limitations of own job responsibility and reporting procedures for any work related problems 1.4 explain the hazards to be considered when planning to dismantle overhead line plant and equipment 1.5 describe the organisational procedures for accidents, incidents and emergencies to include: a) fire b) injury to self and others c) threat of terrorism d) hazardous occurrences and near misses

1.6	explain the organisational procedures that need to be complied with when working on overhead line networks
1.7	explain the processes and procedures that need to be complied with when receiving a safety document.

Learning outcome	
The learner will:	
2.	be able to plan and prepare to dismantle overhead line plant and equipment
Assessment criteria	
The learner can:	
2.1	identify the work location using organisational documentation and work instructions
2.2	apply organisational work documentation to identify the work activity
2.3	plan the activities required to dismantle overhead line plant and equipment
2.4	carry out a site specific risk assessment in accordance with health and safety regulations
2.5	select and wear Personal Protective Equipment (PPE) required for the job role
2.6	identify the overhead line plant and equipment to be dismantled in line with organisational procedures
2.7	select the appropriate tools and equipment required to dismantle the overhead line plant and equipment
2.8	inform those who will be directly and indirectly affected by the intended work plan.

Learning outcome	
The learner will:	
3.	be able to dismantle overhead line plant and equipment
Assessment criteria	
The learner can:	
3.1	confirm the system is safe to work on in accordance with organisational procedures
3.2	implement the work plan in line with organisational procedures to meet safe control system requirements
3.3	dismantle overhead line plant and equipment in line with work plan and organisational procedures
3.4	confirm the finished work meets organisational requirements and quality standards
3.5	record the results of the work in accordance with organisational procedures
3.6	resolve problems within the limits of own job role responsibility

3.7 report problems outside the limits of own responsibility to designated personnel.

Learning outcome

The learner will:

- | |
|--|
| 4. be able to leave the work area in a safe condition according to required regulation and legislation |
|--|

Assessment criteria

The learner can:

- | |
|--|
| 4.1 store tools and equipment on completion of work activity |
| 4.2 dispose of waste materials and hazardous substances |
| 4.3 check the safe condition of the work area. |

Unit 308 Dismantle overhead line plant and equipment

Supporting information

Evidence requirements

You must provide your assessor with evidence for all the learning outcomes and assessment criteria. The evidence must be provided in the following ways taking into account any of the special considerations below.

You need to provide evidence to show that you have carried out dismantlement work within a team on at least **two** different occasions.

Carried out dismantlement of at least **two** different types of the plant listed -

Conductors, insulators, steelwork fittings, pole / tower furniture, power plant / apparatus

Guidance

2.4 a site specific risk assessment should take into consideration:

- Stability and condition of structure to be accessed
- Condition of the conductors supported by the structure
- Environmental conditions – rain, wind, lightning

3.1 points to be considered

- points of isolation
- earthing arrangements
- drain
- vent
- purge

Unit 309

Live low voltage overhead lines connections

UAN:	UF28 04
Level:	3
Credit value:	15
GLH:	150
Assessment requirements specified by a sector or regulatory body:	This unit is endorsed by EU Skills
Aim:	This unit is about carrying out live electrical connections on low voltage overhead line networks. It involves the rigorous application of organisational processes and procedures and the identification and control of hazards in the work area. It also involves the planning and organisation of resources to support the activity, the use of electrical testing equipment and the inspection of the completed work to ensure it meets with organisational requirements.

Learning outcome
The learner will: 1. understand organisational procedures and legislative requirements for work on live low voltage overhead lines
Assessment criteria
The learner can: 1.1 describe the main principles of health and safety legislation and regulations applicable to work on live low voltage overhead lines 1.2 describe roles and responsibilities of employees and employers in relation to organisational procedures and legislative requirements 1.3 explain the limitations of own job responsibility and reporting procedures for any work related problems 1.4 explain the hazards to be considered when planning for work on live low voltage overhead lines 1.5 describe the organisational procedures for accidents, incidents and emergencies to include: a) fire b) injury to self and others c) threat of terrorism d) hazardous occurrences and near misses 1.6 explain the organisational procedures that need to be complied with when working on live low voltage overhead lines

- | |
|--|
| 1.7 explain the processes and procedures that need to be complied with when receiving a safety document. |
|--|

Learning outcome

The learner will:

- | |
|--|
| 2. be able to plan and prepare for work on live low voltage overhead lines |
|--|

Assessment criteria

The learner can:

- | |
|--|
| 2.1 identify the work location using organisational documentation and work instructions |
| 2.2 apply organisational work documentation to identify the work activity |
| 2.3 plan the activities required for work on live low voltage overhead lines |
| 2.4 carry out a site specific risk assessment in accordance with health and safety regulations |
| 2.5 select and wear Personal Protective Equipment (PPE) required for the job role |
| 2.6 select the appropriate tools and equipment required to work on live low voltage overhead lines |
| 2.7 inform those who will be directly and indirectly affected by the intended work plan. |

Learning outcome

The learner will:

- | |
|--|
| 3. be able to carry out live low voltage overhead lines connections in line with work plan and organisational procedures |
|--|

Assessment criteria

The learner can:

- | |
|--|
| 3.1 confirm the system is safe to work on in accordance with organisational procedures including:
a) identification of circuit isolation points
b) person in attendance
c) rescue equipment |
| 3.2 implement the work plan in line with organisational procedures to meet safe control system requirements |
| 3.3 carry out live low voltage overhead line connections in line with work plan and organisational procedures |
| 3.4 confirm the finished work meets organisational requirements and quality standards |
| 3.5 record the results of the work implemented in accordance with organisational procedures |
| 3.6 resolve problems within the limits of own job role responsibility |
| 3.7 report problems outside the limits of own responsibility to |

designated personnel.

Learning outcome

The learner will:

4. be able to leave the work area in a safe condition according to required regulation and legislation

Assessment criteria

The learner can:

- 4.1 store tools and equipment on completion of work activity
- 4.2 dispose of waste materials
- 4.3 check the safe condition of the work area.

Unit 309 Live low voltage overhead lines connections

Supporting information

Evidence requirements

You must provide your assessor with evidence for all the learning outcomes and assessment criteria. The evidence must be provided in the following ways taking into account any of the special considerations below.

You need to provide evidence to show that you have carried out live low voltage overhead line connections within a team on at least **three** different occasions including:

1. A minimum of **two** of the following configurations:

Aerial bundled mains network, Open wire mains network, Service connections, under eaves wiring. Example = 2 x Aerial bundled mains network and 1 x Service connections

Guidance

2.4 a site specific risk assessment should take into consideration:

- Stability and condition of structure to be accessed
- Condition of the conductors to be worked on
- Environmental conditions – rain, wind, lightning
- Pole top rescue method

Unit 310

Jointing of overhead line conductors

UAN:	UF29 04
Level:	3
Credit value:	13
GLH:	66
Assessment requirements specified by a sector or regulatory body:	This unit is endorsed by EU Skills
Aim:	This unit is about the jointing of overhead line conductors in an electrical power engineering environment. It involves the rigorous application of set procedures and processes to ensure the system is safe to work on and undertaking the jointing of conductors in a methodical manner following defined processes. It also involves using and complying with technical design specifications to ensure the completed jointing installation meets with organisational requirements.

Learning outcome
The learner will: 1. understand organisational procedures and legislative requirements for the jointing of overhead line conductors
Assessment criteria
The learner can: 1.1 describe the main principles of health and safety legislation and regulations applicable to work at height on overhead line power equipment 1.2 describe roles and responsibilities of employees and employers in relation to organisational procedures and legislative requirements 1.3 explain the limitations of own job responsibility and reporting procedures for any work related problems 1.4 explain the hazards to be considered when planning the jointing of overhead line conductors 1.5 describe the organisational procedures for accidents, incidents and emergencies to include: a) fire b) injury to self and others c) threat of terrorism d) hazardous occurrences and near misses

1.6	explain the organisational procedures that need to be complied with when working on overhead line networks
1.7	explain the processes and procedures that need to be complied with when receiving a safety document.

Learning outcome	
The learner will:	
2.	be able to plan and prepare to carry out the jointing of overhead line conductors
Assessment criteria	
The learner can:	
2.1	identify the work location using organisational documentation and work instructions
2.2	apply organisational work documentation to identify the work activity
2.3	plan the activities required for jointing of overhead line conductors
2.4	carry out a site specific risk assessment in accordance with health and safety regulations
2.5	select and wear Personal Protective Equipment (PPE) required for the job role
2.6	identify the conductors to be jointed in line with organisational procedures
2.7	select the appropriate tools and equipment required to carry out the jointing of overhead line conductors
2.8	inform those who will be directly and indirectly affected by the intended work plan.

Learning outcome	
The learner will:	
3.	be able to carry out the jointing of overhead line conductors
Assessment criteria	
The learner can:	
3.1	confirm the system is safe to work on in accordance with organisational procedures
3.2	implement the work plan in line with organisational procedures to meet safe control system requirements
3.3	carry out the jointing of overhead line conductors in line with work plan and organisational procedures
3.4	confirm the finished work meets organisational requirements and quality standards
3.5	record the results of the work implemented in accordance with organisational procedures
3.6	resolve problems within the limits of own job role responsibility
3.7	report problems outside the limits of own responsibility to designated personnel.

Learning outcome
The learner will: 4. be able to leave the work area in a safe condition according to required regulation and legislation
Assessment criteria
The learner can: 4.1 store tools and equipment on completion of work activity 4.2 dispose of waste materials and hazardous substances 4.3 check the safe condition of the work area.

Unit 310 Jointing of overhead line conductors

Supporting information

Evidence requirements

You must provide your assessor with evidence for all the learning outcomes and assessment criteria. The evidence must be provided in the following ways taking into account any of the special considerations below.

You need to provide evidence to show that you have co-ordinated and carried out the jointing of overhead line conductors, including:

- The preparation and jointing of **two** tension joints from the following :
mid span, compressed ends, repair sleeves, helical fittings, termination clamps)
- On **two** different Overhead Line conductors
(e.g. ACSR, AAAC, ACAR, GZTACSR)

Guidance

2.4 a site specific risk assessment should take into consideration:

- Stability and condition of structure to be accessed
- Condition of the conductors supported by the structure
- Environmental conditions – rain, wind, lightning

3.1 points to be considered

- points of isolation
- earthing arrangements
- drain
- vent
- purge

Unit 311

Install overhead line conductors

UAN:	UF30 04
Level:	6
Credit value:	13
GLH:	66
Assessment requirements specified by a sector or regulatory body:	This unit is endorsed by EU Skills
Aim:	This unit is about the installation of overhead line conductors in an electrical power engineering environment. It involves the rigorous application of set procedures and processes to ensure the network is safe to work on and the identification and control of hazards in the work area. It involves the use of a range of tools and equipment to carry out the installation of conductors and the use of technical design specifications to ensure the completed conductor installation meets with organisational and technical requirements.

Learning outcome
The learner will: 1. understand organisational procedures and legislative requirements for the installation of overhead line conductors
Assessment criteria
The learner can: 1.1 describe the main principles of health and safety legislation and regulations applicable to work at height on overhead line power equipment 1.2 describe roles and responsibilities of employees and employers in relation to organisational procedures and legislative requirements 1.3 explain the limitations of own job responsibility and reporting procedures for any work related problems 1.4 explain the hazards to be considered when planning the installation of overhead line conductors 1.5 describe the organisational procedures for accidents, incidents and emergencies to include: a) fire b) injury to self and others c) threat of terrorism

	d) hazardous occurrences and near misses
1.6	explain the organisational procedures that need to be complied with when working on overhead line networks
1.7	explain the processes and procedures that need to be complied with when receiving a safety document.

Learning outcome	
The learner will:	
2.	be able to plan and prepare to install overhead line conductors
Assessment criteria	
The learner can:	
2.1	identify the work location using organisational documentation and work instructions
2.2	apply organisational work documentation to identify the work activity
2.3	plan the activities required for the installation of overhead line conductors
2.4	carry out a site specific risk assessment in accordance with health and safety regulations
2.5	select and wear Personal Protective Equipment (PPE) required for the job role
2.6	identify and check the conductors to be installed in line with organisational procedures
2.7	select the appropriate tools and equipment required to install overhead line conductors
2.8	inform those who will be directly and indirectly affected by the intended work plan.

Learning outcome	
The learner will:	
3.	be able to carry out the installation of overhead line conductors
Assessment criteria	
The learner can:	
3.1	confirm the system is safe to work on in accordance with organisational procedures
3.2	implement the work plan in line with organisational procedures to meet safe control system requirements
3.3	carry out the conductor installation in line with work plan and organisational procedures
3.4	confirm the finished work meets organisational requirements and quality standards
3.5	record the results of the work implemented in accordance with organisational procedures
3.6	resolve problems within the limits of own job role responsibility

3.7 report problems outside the limits of own responsibility to designated personnel.

Learning outcome

The learner will:

4. be able to leave the work area in a safe condition according to required regulation and legislation
--

Assessment criteria

The learner can:

4.1 store tools and equipment on completion of work activity
--

4.2 dispose of waste materials and hazardous substances

4.3 check the safe condition of the work area.
--

Unit 311 Install overhead line conductors

Supporting information

Evidence requirements

You must provide your assessor with evidence for all the learning outcomes and assessment criteria. The evidence must be provided in the following ways taking into account any of the special considerations below.

You need to provide evidence to show that you have carried out the installation, tensioning and termination of overhead line conductors on **two** separate occasions, including:

- **two** different overhead line conductors (e.g. ACSR, AAAC, ACAR, GZTACSR)
- Installed **two** different types of tension fittings (e.g. mid span, compressed ends, repair sleeves, helical fittings, termination clamps) termination fittings, compressed anchor ends, wedge clamps, jumper ends

Guidance

2.4 a site specific risk assessment should take into consideration:

- Stability and condition of structure to be accessed
- Condition of the conductors supported by the structure
- Environmental conditions – rain, wind, lightning

3.1 points to be considered

- points of isolation
- earthing arrangements
- drain
- vent
- purge

Unit 312

Maintain overhead line plant and equipment

UAN:	UF31 04
Level:	6
Credit value:	13
GLH:	66
Assessment requirements specified by a sector or regulatory body:	This unit is endorsed by EU Skills
Aim:	This unit is about maintaining overhead line plant and equipment in an electrical power engineering environment. It involves the rigorous application of set processes and procedures to ensure the system is safe to work on and the identification and control of hazards in the work area. It also involves the planning and organisation of resources to carry out maintenance activities and testing operations to ensure the completed maintenance work meets with technical specifications and organisational requirements.

Learning outcome
The learner will: 1. understand organisational procedures and legislative requirements for the maintenance of overhead line plant and equipment
Assessment criteria
The learner can: 1.1 describe the main principles of health and safety legislation and regulations applicable to work at height on overhead line power equipment 1.2 describe roles and responsibilities of employees and employers in relation to organisational procedures and legislative requirements 1.3 explain the limitations of own job responsibility and reporting procedures for any work related problems 1.4 explain the hazards to be considered when planning the maintenance of overhead line plant and equipment 1.5 describe the organisational procedures for accidents, incidents and emergencies to include: a) fire b) injury to self and others c) threat of terrorism

<p>d) hazardous occurrences and near misses</p> <p>1.6 explain the organisational procedures that need to be complied with when working on overhead line networks</p> <p>1.7 explain the processes and procedures that need to be complied with when receiving a safety document.</p>

Learning outcome
The learner will:
2. be able to plan and prepare to maintain overhead line plant and equipment
Assessment criteria
The learner can:
2.1 identify the work location using organisational documentation and work instructions
2.2 apply organisational work documentation to identify the work activity
2.3 plan the activities required for the maintenance of overhead line plant and equipment
2.4 carry out a site specific risk assessment in accordance with health and safety regulations
2.5 select and wear Personal Protective Equipment (PPE) required for the job role
2.6 identify the plant or equipment to be maintained in line with organisational procedures
2.7 select the appropriate tools and equipment required to maintain the overhead line plant and equipment
2.8 inform those who will be directly and indirectly affected by the intended work plan.

Learning outcome
The learner will:
3. be able to carry out the maintenance of overhead line plant and equipment
Assessment criteria
The learner can:
3.1 confirm the system is safe to work on in accordance with organisational procedures
3.2 implement the work plan in line with organisational procedures to meet safe control system requirements
3.3 carry out the maintenance work in line with work plan and organisational procedures
3.4 confirm the finished work meets organisational requirements and quality standards
3.5 record the results of the work implemented in accordance with

organisational procedures
3.6 resolve problems within the limits of own job role responsibility
3.7 report problems outside the limits of own responsibility to designated personnel.

Learning outcome
The learner will: 4. be able to leave the work area in a safe condition according to required regulation and legislation
Assessment criteria
The learner can: 4.1 store tools and equipment on completion of work activity 4.2 dispose of waste materials and hazardous substances 4.3 check the safe condition of the work area.

Unit 312 Maintain overhead line plant and equipment

Supporting information

Evidence requirements

You must provide your assessor with evidence for all the learning outcomes and assessment criteria. The evidence must be provided in the following ways taking into account any of the special considerations below.

You need to provide evidence to show that you have carried out maintenance work within a team on at least **two** different occasions.

Carried out maintenance of at least **two** different types of the plant listed –

Transmission Range: Conductors, insulators, fittings, tower furniture, spacers

Distribution Range: ABSD, Auto recloser, HV fuses, Cable termination, Sectionaliser

Guidance

2.4 a site specific risk assessment should take into consideration:

- Stability and condition of structure to be accessed
- Condition of the conductors supported by the structure
- Environmental conditions – rain, wind, lightning

3.1 points to be considered

- points of isolation
- earthing arrangements
- drain
- vent
- purge

Unit 313

Inspection of overhead line routes

UAN:	UF32 04
Level:	6
Credit value:	6
GLH:	34
Assessment requirements specified by a sector or regulatory body:	This unit is endorsed by EU Skills
Aim:	This unit is about carrying out the inspection of overhead line routes in an electrical power engineering environment. It involves the visual examination of conductors, conductor supports and the environment in which they are situated. It involves the systematic planning and organisation of the routes to be inspected and the use of technical specifications to ensure the overhead line routes inspected meet with design specifications. It also involves the interpretation and recording of inspection results to determine future maintenance activities.

Learning outcome
The learner will: 1. understand organisational procedures and legislative requirements for the inspection of overhead line routes
Assessment criteria
The learner can: 1.1 describe the main principles of health and safety legislation and regulations applicable to the inspection of overhead line routes 1.2 describe roles and responsibilities of employees and employers in relation to organisational procedures and legislative requirements 1.3 explain the limitations of own job responsibility and reporting procedures for any work related problems 1.4 explain the hazards to be considered when planning for the inspection of overhead line routes 1.5 describe the organisational procedures for accidents, incidents and emergencies to include: a) fire b) injury to self and others c) threat of terrorism

<p>d) hazardous occurrences and near misses</p> <p>1.6 explain the organisational procedures that need to be complied with when carrying out the inspection of overhead line routes including those for lone working.</p>

Learning outcome
The learner will:
2. be able to plan and prepare for the inspection of overhead line routes
Assessment criteria
The learner can:
2.1 identify the overhead line route to be inspected using organisational documentation and work instructions
2.2 plan the activities required for the inspection of the overhead line routes
2.3 carry out a site specific risk assessment in accordance with health and safety regulations
2.4 select and wear Personal Protective Equipment (PPE) required for the job role
2.5 select the appropriate tools and equipment required to carry out the inspection of overhead line routes
2.6 inform those who will be directly and indirectly affected by the intended work plan.

Learning outcome
The learner will:
3. be able to carry out the inspection of overhead line routes in line with the work plan and organisational procedures
Assessment criteria
The learner can:
3.1 implement the work plan in line with organisational procedures to meet safe control system requirements
3.2 carry out the inspection of overhead line routes in line with the work plan and organisational procedures
3.3 interpret and record the results of the inspection in line with organisational procedures
3.4 resolve problems within the limits of own job role responsibility
3.5 report problems outside the limits of own responsibility to designated personnel.

Learning outcome
The learner will:
4. be able to leave the work area in a safe condition according to required regulation and legislation

Assessment criteria
The learner can: 4.1 store tools and equipment on completion of work activity 4.2 dispose of waste materials and hazardous substances 4.3 check the safe condition of the work area.

Unit 313 Inspection of overhead line routes

Supporting information

Evidence requirements

You must provide your assessor with evidence for all the learning outcomes and assessment criteria. The evidence must be provided in the following ways taking into account any of the special considerations below.

You need to provide evidence to show that you have carried out the inspection of overhead line routes on **two** separate occasions including **two** different conductor types and **two** different voltages

Guidance

2.4 a site specific risk assessment should take into consideration:

- Lone Working Arrangements

Unit 315

Low voltage distribution underground cable jointing

UAN:	UF34 04
Level:	6
Credit value:	15
GLH:	150
Assessment requirements specified by a sector or regulatory body:	This unit is endorsed by EU Skills
Aim:	This unit is about carrying out the jointing of low voltage underground cables in an electrical power engineering environment. It involves the rigorous application of set procedures and processes to work safely on underground cable systems and the identification and control of hazards. It also involves using and complying with technical design specifications to ensure the completed jointing operation meets with organisational and technical requirements.

Learning outcome
The learner will: 1. understand organisational procedures and legislative requirements for low voltage distribution underground cable jointing
Assessment criteria
The learner can: 1.1 describe the main principles of health and safety legislation and regulations relating to work on low voltage distribution underground cables 1.2 describe roles and responsibilities of employees and employers in relation to organisational procedures and legislative requirements 1.3 explain the limitations of own job responsibility and reporting procedures for work related problems 1.4 explain the hazards of working on low voltage underground cables and the control measures used to control them 1.5 explain what materials and substances are hazardous to health in relation to job role 1.6 explain the the hazards of working in and around excavations and the measures used to control them 1.7 describe organisational procedures for accidents, incidents and emergencies to include:

<ul style="list-style-type: none"> a) fire b) injury to self and others c) threat of terrorism d) hazardous occurrences and near misses <p>1.8 explain the organisational procedures that need to be complied with when carrying out the jointing of low voltage underground cables.</p>
--

Learning outcome
The learner will:
2. be able to plan and prepare resources for low voltage distribution cable jointing
Assessment criteria
The learner can:
2.1 identify the work location using company documentation and work instructions
2.2 apply organisational work documentation to identify the work activity
2.3 plan the activities required for work on low voltage underground cables
2.4 carry out a site specific risk assessment in accordance with health and safety regulations
2.5 select and wear personal protective equipment (PPE) required for the job role
2.6 select and carry out pre use checks on tools and equipment required for work on low voltage underground cables
2.7 carry out pre work inspection of the underground cable/s to be worked on in accordance with organisational procedures
2.8 inform those who will be directly and indirectly affected by the intended work plan.

Learning outcome
The learner will:
3. be able to carry out low voltage underground cable jointing
Assessment criteria
The learner can:
3.1 implement control measures in line with organisational procedures to meet safe control system requirements
3.2 carry out testing operations on low voltage underground cables in accordance with organisational procedures
3.3 carry out low voltage jointing operations in line with work plan and organisational procedures
3.4 monitor control measures to ensure risks are minimised
3.5 confirm the finished work meets organisational requirements and quality standards
3.6 record the results of the work implemented in accordance with organisational procedures
3.7 resolve problems within the limits of own job responsibility
3.8 report problems outside the limits of own responsibility to

designated personnel.

Learning outcome

The learner will:

4. be able to leave the work area in a safe condition according to required regulation and legislation

Assessment criteria

The learner can:

- 4.1 store tools and test equipment on completion of work activity
- 4.2 dispose of waste materials and hazardous substances
- 4.3 check the safe condition of the work area.

Unit 315

Low voltage distribution underground cable jointing Low voltage distribution cable jointing

Supporting information

Evidence requirements

You must provide your assessor with evidence for all the learning outcomes and assessment criteria. The evidence must be provided in the following ways taking into account any of the special considerations below.

You need to provide evidence to show that you have carried out the jointing of low voltage underground cables, including any **two** of the following low voltage service cable joints:

- service to polymeric main
- service to paper main
- service transition straight

And also any **two** of the following low voltage mains cable joints:

- polymeric branch
- transition straight
- transition branch
- link box
- LV termination

Guidance

2.6 Select and check - to include inspection of insulation and condition of live working tools and equipment

3.1 Control measures may include - identification of correct cable, signs/barriers, control/removal of hazards, person in attendance, traffic control, excavation shuttering

Unit 316

Low voltage consac underground cable jointing

UAN:	UF35 04
Level:	6
Credit value:	15
GLH:	150
Assessment requirements specified by a sector or regulatory body:	This unit is endorsed by EU Skills
Aim:	This unit is about carrying out the jointing of low voltage consac underground cables in an electrical power engineering environment. It involves the rigorous application of set procedures and processes to work safely on underground cable systems and the identification and control of hazards. It also involves using and complying with technical design specifications to ensure the completed jointing operation meets with organisational and technical requirements.

Learning outcome
The learner will: 1. understand organisational procedures and legislative requirements for low voltage consac underground cable jointing
Assessment criteria
1.1 describe the main principles of health and safety legislation and regulations relating to work on low voltage consac underground cables 1.2 describe roles and responsibilities of employees and employers in relation to organisational procedures and legislative requirements 1.3 explain the limitations of own job responsibility and reporting procedures for work related problems 1.4 explain the hazards of working on low voltage consac underground cables and the control measures used to control them 1.5 explain what materials and substances are hazardous to health in relation to job role 1.6 explain the hazards of working in and around excavations and the measures used to control them 1.7 describe organisational procedures for accidents, incidents and emergencies to include: a) fire

<ul style="list-style-type: none"> b) injury to self and others c) threat of terrorism d) hazardous occurrences and near misses <p>1.8 explain the organisational procedures that need to be complied with when carrying out the jointing of low voltage consac underground cables.</p>
--

Learning outcome
The learner will:
2. be able to plan and prepare for low voltage consac underground cable jointing
Assessment criteria
The learner can:
2.1 identify the work location using company documentation and work instructions
2.2 apply organisational work documentation to identify the work activity
2.3 plan the activities required for low voltage consac underground cable jointing
2.4 carry out a site specific risk assessment in accordance with health and safety regulations
2.5 select and wear personal protective equipment (PPE) required for the job role
2.6 select and carry out pre use checks on tools and equipment required for work on low voltage consac underground cables
2.7 carry out pre work inspection of the underground cable/s to be worked on in accordance with organisational procedures
2.8 inform those who will be directly and indirectly affected by the intended work plan.

Learning outcome
The learner will:
3. be able to carry out low voltage consac underground cable jointing
Assessment criteria
The learner can:
3.1 implement control measures in line with organisational procedures to meet safe control systems
3.2 carry out testing operations on low voltage consac underground cables as required
3.3 carry out low voltage consac jointing operations in line with work plan and organisational procedures
3.4 monitor control measures to ensure risks are minimised
3.5 confirm the finished work meets organisational requirements and quality standards
3.6 record the results of the work implemented in accordance with organisational procedures
3.7 resolve problems within the limits of own job responsibility
3.8 report problems outside the limits of own responsibility to designated personnel.

Learning outcome
The learner will: 4. be able to leave the work area in a safe condition according to required regulation and legislation
Assessment criteria
The learner can: 4.1 store tools and test equipment on completion of work activity 4.2 dispose of waste materials and hazardous substances 4.3 check the safe condition of the work area.

Unit 316 Low voltage consac underground cable jointing

Supporting information

Evidence requirements

You must provide your assessor with evidence for all the learning outcomes and assessment criteria. The evidence must be provided in the following ways taking into account any of the special considerations below.

You will need to provide evidence to show that on at least **three** different occasions you carried out **two** of the following:

- multi service
- mains transition straight
- mains transition branch
- end termination

Guidance

2.6 Select and check - to include inspection of insulation and condition of live working tools and equipment

3.1 Control measures may include - identification of correct cable, signs/barriers, control/removal of hazards, person in attendance, traffic control, excavation shuttering

Unit 317

High voltage distribution underground cable jointing

UAN:	UF36 04
Level:	6
Credit value:	15
GLH:	150
Assessment requirements specified by a sector or regulatory body:	This unit is endorsed by EU Skills
Aim:	This unit is about carrying out the jointing of high voltage underground cables in an electrical power engineering environment. It involves following set procedures and processes to ensure the underground cable network is safe to work on and the identification and control of hazards. It also involves using and complying with technical design specifications to ensure the completed jointing operation meets with organisational and technical requirements.

Learning outcome
The learner will: 1. understand organisational procedures and legislative requirements for high voltage distribution underground cable jointing
Assessment criteria
The learner can: 1.1 describe the main principles of health and safety legislation and regulations relating to work on high voltage distribution underground cables 1.2 describe roles and responsibilities of employees and employers in relation to organisational procedures and legislative requirements 1.3 explain the limitations of own job responsibility and reporting procedures for any work related problems 1.4 explain the hazards of working on high voltage underground cables and the control measures used to control them 1.5 explain what materials and substances are hazardous to health in relation to job role 1.6 explain the hazards of working in and around excavations and the measures used to control them 1.7 describe the organisational procedures for accidents, incidents and emergencies to include: a) fire

	<ul style="list-style-type: none"> b) injury to self and others c) threat of terrorism d) hazardous occurrences and near misses
1.8	explain the organisational procedures that need to be complied with when carrying out the jointing of high voltage underground cables
1.9	explain the processes and procedures that need to be complied with when receiving a safety document.

Learning outcome	
The learner will:	
2.	be able to plan and prepare for high voltage distribution underground cable jointing
Assessment criteria	
The learner can:	
2.1	identify the work location using company documentation and work instructions
2.2	apply organisational work documentation to identify the work activity
2.3	plan the activities required for work on high voltage distribution underground cables
2.4	carry out a site specific risk assessment in accordance with health and safety regulations
2.5	select and wear personal protective equipment (PPE) required for the job role
2.6	select and carry out pre use checks on tools and equipment required for work on high voltage underground cables
2.7	carry out pre work inspection of the underground cable/s to be worked on in accordance with organisational procedures
2.8	inform those who will be directly and indirectly affected by the intended work plan.

Learning outcome	
The learner will:	
3.	be able to carry out high voltage underground cable jointing
Assessment criteria	
The learner can:	
3.1	implement control measures in line with organisational procedures to meet safe control system requirements
3.2	carry out testing operations on low voltage underground cables in accordance with organisational procedures
3.3	carry out high voltage jointing operations in line with work plan and organisational procedures
3.4	monitor control measures to ensure risks are minimised
3.5	confirm the finished work meets organisational requirements and quality standards
3.6	record the results of the work implemented in accordance with organisational procedures
3.7	resolve problems within the limits of own job responsibility
3.8	report problems outside the limits of own responsibility to

designated personnel.

Learning outcome

The learner will:

4. be able to leave the work area in a safe condition according to required regulation and legislation

Assessment criteria

The learner can:

- 4.1 store tools and equipment on completion of work activity
- 4.2 dispose of waste materials and hazardous substances
- 4.3 check the safe condition of the work area.

Unit 317 High voltage distribution underground cable jointing

Supporting information

Evidence requirements

You must provide your assessor with evidence for all the learning outcomes and assessment criteria. The evidence must be provided in the following ways taking into account any of the special considerations below.

You will need to provide evidence to show that on at least **two** different occasions you carried out **all** of the following:

- **one** occasion for the jointing of **both** termination and straight joints on polymeric cables
- **one** occasion for the jointing of paper insulated cables

Guidance

2.6 Select and check - to include inspection of insulation and condition of live working tools and equipment

3.1 Control measures may include – receipt of a safety document, identification of correct cable, signs/barriers, control/removal of hazards, person in attendance, traffic control, excavation shuttering

Unit 318

High voltage polymeric transmission cable jointing

UAN:	UF37 04
Level:	6
Credit value:	15
GLH:	150
Assessment requirements specified by a sector or regulatory body:	This unit is endorsed by EU Skills
Aim:	This unit is about carrying out the jointing of high voltage polymeric transmission cables in an electrical power engineering environment. It involves the rigorous application of set procedures and processes to ensure the transmission cable network is safe to work on and the identification and control of hazards. It also involves using and complying with technical design specifications to ensure the completed high voltage jointing operation meets with organisational requirements.

Learning outcome
The learner will: 1. understand organisational procedures and legislative requirements for high voltage polymeric transmission cable jointing
Assessment criteria
The learner can: 1.1 describe the main principles of health and safety legislation and regulations relating to work on high voltage polymeric transmission cables 1.2 describe roles and responsibilities of employees and employers in relation to organisational procedures and legislative requirements 1.3 explain the limitations of own job responsibility and reporting procedures for any work related problems 1.4 explain the hazards of working on high voltage polymeric transmission cables and the control measures used to control them 1.5 explain what materials and substances are hazardous to health in relation to job role 1.6 explain the hazards of working in and around excavations and the measures used to control them 1.7 describe the organisational procedures for accidents, incidents and emergencies to include:

	<ul style="list-style-type: none"> a) fire b) injury to self and others c) threat of terrorism d) hazardous occurrences and near misses
1.8	explain the organisational procedures that need to be complied with when carrying out high voltage polymeric transmission cable jointing
1.9	explain the processes and procedures that need to be complied with when receiving a safety document.

Learning outcome	
The learner will:	
2.	be able to plan and prepare for high voltage polymeric transmission cable jointing
Assessment criteria	
The learner can:	
2.1	identify the work location using company documentation and work instructions
2.2	apply organisational work documentation to identify the work activity
2.3	plan the activities required for work on high voltage polymeric transmission cables
2.4	carry out a site specific risk assessment in accordance with health and safety regulations
2.5	select and wear personal protective equipment (PPE) required for the job role
2.6	select and carry out pre use checks on tools and equipment required for work on high voltage polymeric transmission cables
2.7	carry out pre work inspection of the underground cable/s to be worked on in accordance with organisational procedures
2.8	inform those who will be directly and indirectly affected by the intended work plan.

Learning outcome	
The learner will:	
3.	be able to carry out high voltage polymeric transmission cable jointing
Assessment criteria	
The learner can:	
3.1	implement control measures in line with organisational procedures to meet safe control system requirements
3.2	carry out testing operations on high voltage underground cables in accordance with organisational procedures
3.3	carry out high voltage jointing operations in line with work plan and organisational procedures
3.4	monitor control measures to ensure risks are minimised
3.5	confirm the finished work meets organisational requirements and quality standards
3.6	record the results of the work implemented in accordance with organisational procedures

- | |
|---|
| 3.7 resolve problems within the limits of own job responsibility |
| 3.8 report problems outside the limits of own responsibility to designated personnel. |

Learning outcome
The learner will: 4. be able to leave the work area in a safe condition according to required regulation and legislation
Assessment criteria
The learner can: 4.1 store tools and equipment on completion of work activity 4.2 dispose of waste materials and hazardous substances 4.3 check the safe condition of the work area.

Unit 318 High voltage polymeric transmission cable jointing

Supporting information

Evidence requirements

You must provide your assessor with evidence for all the learning outcomes and assessment criteria. The evidence must be provided in the following ways taking into account any of the special considerations below.

You will need to provide evidence to show that the have carried out the jointing of high voltage polymeric transmission underground cables on at least **two** different occasions you carried out **all** of the following:

1. Terminations:

Complete **one** joint from each area of the following XLPE cable terminations:

- a) 3c termination (indoor or outdoor)
- b) 3 x single core termination (indoor or outdoor)

2. Joints:

Complete **two** of the following XLPE cable joints:

- a) Single core straight joint
- b) Three core straight joint
- c) Bifurcating joint
- d) Stop joint

Guidance

2.6 Select and check - to include inspection of insulation and condition of live working tools and equipment

3.1 Control measures may include – receipt of a safety document, identification of correct cable, signs/barriers, control/removal of hazards, person in attendance, traffic control, excavation shuttering

Unit 319

High voltage pressurised transmission cable jointing

UAN:	UF38 04
Level:	6
Credit value:	15
GLH:	150
Assessment requirements specified by a sector or regulatory body:	This unit is endorsed by EU Skills
Aim:	This unit is about carrying out the jointing of high voltage pressurised transmission cables in an electrical power engineering environment. It involves the rigorous application of set procedures and processes to ensure the transmission cable network is safe to work on and the identification and control of hazards. It also involves using and complying with technical design specifications to ensure the completed high voltage jointing operation meets with technical specifications and organisational and requirements.

Learning outcome
The learner will: 1. understand organisational procedures and legislative requirements for high voltage pressurised transmission cable jointing
Assessment criteria
The learner can: 1.1 describe the main principles of health and safety legislation and regulations relating to work on high voltage pressurised transmission cables 1.2 describe roles and responsibilities of employees and employers in relation to organisational procedures and legislative requirements 1.3 explain the limitations of own job responsibility and reporting procedures for any work related problems 1.4 explain the hazards of working on high voltage pressurised transmission cables and the control measures used to control them 1.5 explain what materials and substances are hazardous to health in relation to job role 1.6 explain the hazards of working in and around excavations and the measures used to control them 1.7 describe the organisational procedures for accidents, incidents and

<p>emergencies to include:</p> <ul style="list-style-type: none"> a) fire b) injury to self and others c) threat of terrorism d) hazardous occurrences and near misses <p>1.8 explain the organisational procedures that need to be complied with when carrying out the jointing of high voltage pressurised transmission cable jointing</p> <p>1.9 explain the processes and procedures that need to be complied with when receiving a safety document.</p>
--

Learning outcome
The learner will:
2. be able to plan and prepare for high voltage pressurised transmission cable jointing
Assessment criteria
The learner can:
2.1 identify the work location using company documentation and work instructions
2.2 apply organisational work documentation to identify the work activity
2.3 plan the activities required for work on high voltage pressurised transmission cables
2.4 carry out a site specific risk assessment in accordance with health and safety regulations
2.5 select and wear personal protective equipment (PPE) required for the job role
2.6 select and carry out pre use checks on tools and equipment required for work on high voltage pressurised transmission cables
2.7 carry out pre work inspection of the underground cable/s to be worked on in accordance with organisational procedures
2.8 inform those who will be directly and indirectly affected by the intended work plan.

Learning outcome
The learner will:
3. be able to carry out high voltage pressurised transmission cable jointing
Assessment criteria
The learner can:
3.1 implement control measures in line with organisational procedures to meet safe control system requirements
3.2 carry out testing operations on high voltage underground cables in accordance with organisational procedures
3.3 carry out high voltage jointing operations in line with work plan and organisational procedures
3.4 monitor control measures to ensure risks are minimised
3.5 confirm the finished work meets organisational requirements and quality standards
3.6 record the results of the work implemented in accordance with

<p>organisational procedures</p> <p>3.7 resolve problems within the limits of own job responsibility</p> <p>3.8 report problems outside the limits of own responsibility to designated personnel.</p>

<p>Learning outcome</p> <p>The learner will:</p> <p>4. be able to leave the work area in a safe condition according to required regulation and legislation</p>
<p>Assessment criteria</p> <p>The learner can:</p> <p>4.1 store tools and equipment on completion of work activity</p> <p>4.2 dispose of waste materials and hazardous substances</p> <p>4.3 check the safe condition of the work area.</p>

Unit 319 High voltage pressurised transmission cable jointing

Supporting information

Evidence requirements

You must provide your assessor with evidence for all the learning outcomes and assessment criteria. The evidence must be provided in the following ways taking into account any of the special considerations below.

You will need to provide evidence to show that the have carried out the jointing of high voltage pressurised transmission underground cables on at least **two** different occasions:

Pressurised Cables:

Complete **two** of the following joint types:

- a) **All** Pressurised system straight or through joint
- b) Pressurised to XLPE stop joint
- c) Pressurised system repair sleeve
- d) Pressurised system joint repair

Guidance

2.6 Select and check - to include inspection of insulation and condition of live working tools and equipment

3.1 Control measures may include – receipt of a safety document, identification of correct cable, signs/barriers, control/removal of hazards, person in attendance, traffic control, excavation shuttering

Unit 321

Dismantle substation plant and apparatus

UAN:	UF40 04
Level:	6
Credit value:	17
GLH:	140
Assessment requirements specified by a sector or regulatory body:	This unit is endorsed by EU Skills
Aim:	This unit is about the dismantlement of substation plant and apparatus in an electrical power engineering environment. It involves following set operational procedures to ensure the system is safe to work on and undertaking dismantlement activities in a controlled and methodical manner. It also involves the planning and organisation of work activities and the identification and control of hazards to ensure the dismantlement work is carried out safely and meets organisational requirements.

Learning outcome
The learner will: 1. understand organisational procedures and legislative requirements for dismantling substation plant and apparatus
Assessment criteria
The learner can: 1.1 describe the main principles of health and safety legislation and regulations applicable to dismantling substation plant and apparatus 1.2 describe roles and responsibilities of employees and employers in relation to organisational procedures and legislative requirements 1.3 explain the limitations of own job responsibility and reporting procedures for any work related problems 1.4 explain what materials and substances are hazardous to health in relation to job role 1.5 explain the hazards to be considered when planning to dismantle substation plant and apparatus 1.6 describe the organisational procedures for accidents, incidents and emergencies to include: a) fire

	<ul style="list-style-type: none"> b) injury to self and others c) threat of terrorism d) hazardous occurrences and near misses
1.7	explain the organisational procedures that need to be complied with when dismantling plant and substation apparatus
1.8	explain the processes and procedures that need to be complied with when receiving a safety document.

Learning outcome	
The learner will:	
2.	be able to plan and prepare for dismantling plant and substation apparatus
Assessment criteria	
The learner can:	
2.1	identify the work location using organisational documentation and work instructions
2.2	apply organisational work documentation to identify the work activity
2.3	plan the activities required for dismantling substation plant and apparatus
2.4	carry out a site specific risk assessment in accordance with health and safety regulations
2.5	select and wear Personal Protective Equipment (PPE) required for the job role
2.6	identify the apparatus to be dismantled in line with organisational procedures
2.7	select suitable tools and equipment required to dismantle the substation apparatus
2.8	inform those who will be directly and indirectly affected by the intended work plan.

Learning outcome	
The learner will:	
3.	be able to dismantle substation plant and apparatus
Assessment criteria	
The learner can:	
3.1	confirm the system is safe to work on in accordance with organisational procedures
3.2	implement control measures in line with company procedures to meet safe control systems
3.3	dismantle plant and apparatus in line with work plan and organisational procedures
3.4	monitor control measures to ensure risks are minimised
3.5	confirm the finished work meets organisational requirements and quality standards
3.6	record the results of the work implemented in accordance with organisational procedures
3.7	provide information to update safety systems records
3.8	resolve problems within the limits of own job role responsibility

3.9 report problems outside the limits of own responsibility to designated personnel.

Learning outcome

The learner will:

- | |
|--|
| 4. be able to leave the work area in a safe condition according to required regulation and legislation |
|--|

Assessment criteria

The learner can:

- | |
|---|
| 4.1 store tools and test equipment on completion of work activity |
| 4.2 dispose of waste materials and hazardous substances |
| 4.3 check the safe condition of the work area. |

Unit 321 Dismantle substation plant and apparatus

Supporting information

Evidence requirements

You must provide your assessor with evidence for all the learning outcomes and assessment criteria. The evidence must be provided in the following ways taking into account any of the special considerations below.

You need to provide evidence to show that over **three** different projects you have co-ordinated and dismantled **three** of the following items:

- Transformer
- Switchgear
- Package sub-station
- LV frames
- Panel wiring
- Battery and charger
- Cable installations
- LV apparatus
- Automation equipment
- Switchgear housing
- Busbar installations
- Compressed air equipment

Guidance

2.7 Select – to include inspection of condition

3.2 Control measures may include

- receipt of a safety document
- points of isolation
- earthing arrangements
- drain
- vent
- purge

Unit 322

Maintain substation switchgear

UAN:	UF41 04
Level:	3
Credit value:	16
GLH:	96
Assessment requirements specified by a sector or regulatory body:	This unit is endorsed by
Aim:	This unit is about carrying out maintenance operations on substation switchgear in an electrical power engineering environment. It involves following set processes and procedures to ensure the system is safe to work on and the identification and control of hazards in the work area. It also involves the planning and organisation of resources to carry out maintenance activities and testing operations to ensure the completed maintenance work meets with technical specifications and organisational requirements.

Learning outcome
The learner will: 1. understand organisational procedures and legislative requirements for work on substation switchgear
Assessment criteria
The learner can: 1.1 describe the main principles of health and safety legislation and regulations relating to work on substation plant and apparatus 1.2 describe roles and responsibilities of employees and employers in relation to organisational procedures and legislative requirements 1.3 explain the limitations of own job responsibility and reporting procedures for any work related problems 1.4 explain the hazards to be considered when planning to maintain substation switchgear 1.5 explain what materials and substances are hazardous to health in relation to job role 1.6 describe the organisational procedures for accidents, incidents and emergencies to include: a) fire b) injury to self and others

<ul style="list-style-type: none"> c) threat of terrorism d) hazardous occurrences and near misses <p>1.7 explain the organisational procedures that need to be complied with when maintaining substation switchgear</p> <p>1.8 explain the processes and procedures that need to be complied with when receiving a safety document.</p>
--

Learning outcome
The learner will:
2. be able to plan and prepare to maintain substation switchgear
Assessment criteria
The learner can:
2.1 identify the work location using organisational documentation and work instructions
2.2 apply organisational work documentation to identify the work activity
2.3 plan the activities required for the maintenance of substation switchgear
2.4 carry out a site specific risk assessment in accordance with health and safety regulations
2.5 select and wear personal protective equipment (PPE) required for the job role
2.6 identify and carry out a pre work inspection of the switchgear to be maintained in line with organisational procedures
2.7 select suitable tools and equipment required to maintain the substation apparatus
2.8 inform those who will be directly and indirectly affected by the intended work plan.

Learning outcome
The learner will:
3. be able to maintain substation switchgear
Assessment criteria
The learner can:
3.1 confirm the system is safe to work on in accordance with organisational procedures
3.2 implement control measures in line with organisational procedures to meet safe control system requirements
3.3 maintain substation switchgear in line with work plan and organisational procedures
3.4 monitor control measures to ensure risks are minimised
3.5 confirm the finished work meets organisational requirements and quality standards
3.6 record the results of the work implemented in accordance with organisational procedures
3.7 resolve problems within the limits of own job role responsibility
3.8 report problems outside the limits of own responsibility to designated personnel.

Learning outcome
The learner will: 4. be able to leave the work area in a safe condition according to required regulation and legislation
Assessment criteria
The learner can: 4.1 store tools and test equipment on completion of work activity 4.2 dispose of waste materials and hazardous substances 4.3 check the safe condition of the work area.

Unit 322 Maintain substation switchgear

Supporting information

Evidence requirements

You must provide your assessor with evidence for all the learning outcomes and assessment criteria. The evidence must be provided in the following ways taking into account any of the special considerations below.

You need to provide evidence to show that you have carried out the maintenance of **three** different types of switchgear from the following items:

- Oil filled circuit breakers
- Oil filled switchgear
- SF₆ switchgear
- Vacuum switchgear
- Air blast circuit breakers
- LV switchgear

Guidance

2.7 Select tools – to include an inspection of condition e.g. insulation

3.1 points to be considered

- points of isolation
- earthing arrangements
- drain
- vent
- purge

3.2 Control measures may include

- receipt of a safety document
- points of isolation
- earthing arrangements
- drain
- vent
- purge

Unit 325

Fault repair of substation plant and apparatus

UAN:	UF44 04
Level:	6
Credit value:	18
GLH:	150
Relationship to NOS:	This unit is linked to the
Assessment requirements specified by a sector or regulatory body:	This unit is endorsed by EU Skills
Aim:	This unit is about fault repair of substation plant and apparatus in an electrical power engineering environment. It involves following routine fault rectification and repair procedures. It also involve inspecting the finished repair and rectification work to make sure it's operates in a manner that meets operating specifications and quality standards and criteria set by the organisation.

Learning outcome
The learner will: 1. understand organisational procedures and legislative requirements for carrying out the fault repair of substation plant and apparatus
Assessment criteria
The learner can: 1.1 describe the main principles of health and safety legislation and regulations applicable to work on substation plant and apparatus 1.2 describe roles and responsibilities of employees and employers in relation to organisational procedures and legislative requirements 1.3 explain the limitations of own job responsibility and reporting procedures for any work related problems 1.4 explain the hazards to be considered when carrying out the fault repair of substation plant and apparatus 1.5 describe the organisational procedures for accidents, incidents and emergencies to include: a) fire b) injury to self and others c) threat of terrorism d) hazardous occurrences and near misses 1.6 explain the organisational procedures that need to be complied with when carrying out the fault repair of substation plant and

apparatus 1.7 explain the processes and procedures that need to be complied with when receiving a safety document.

Learning outcome
The learner will: 2. be able to plan and prepare to carry out the fault repair of substation plant and apparatus
Assessment criteria
The learner can: 2.1 identify the work location using organisational documentation and work instructions 2.2 apply organisational work documentation to identify the work activity 2.3 plan the activities required to carry out the repair work 2.4 carry out a site specific risk assessment in accordance with health and safety regulations 2.5 select and wear Personal Protective Equipment (PPE) required for the job role 2.6 inspect the apparatus to be repaired in line with organisational procedures 2.7 select the appropriate tools and equipment required to carry out the repair work 2.8 inform those who will be directly and indirectly affected by the intended work plan.

Learning outcome
The learner will: 3. be able to carry out the fault repair of substation plant and apparatus
Assessment criteria
The learner can: 3.1 confirm the system is safe to work on in accordance with organisational procedures 3.2 implement the work plan in line with organisational procedures to meet safe control system requirements 3.3 carry out the repair work in line with work plan and organisational procedures 3.4 confirm the finished work meets organisational requirements and quality standards 3.5 record the results of the work implemented in accordance with organisational procedures 3.6 resolve problems within the limits of own job role responsibility 3.7 report problems outside the limits of own responsibility to designated personnel.

Learning outcome
The learner will: 4. be able to leave the work area in a safe condition according to required regulation and legislation
Assessment criteria
The learner can: 4.1 store tools and equipment on completion of work activity 4.2 dispose of waste materials and hazardous substances 4.3 check the safe condition of the work area.

Unit 325 Fault repair of substation plant and apparatus

Supporting information

Evidence requirements

You must provide your assessor with evidence for all the learning outcomes and assessment criteria. The evidence must be provided in the following ways taking into account any of the special considerations below.

You need to provide evidence over at least **two** different occasions to show that you have:

1. Carried out the repair of substation plant and apparatus on at least **two** of the following:

- a) HV apparatus b) LV apparatus c) Transformer d) Switchgear
- e) Circuit breakers f) Neutral Earthing g) Resistors h) Isolators
- i) Interrupter heads j) Panel wiring k) TX dehydration
- l) Tap changers m) Compressors n) Ancillary equipment

Guidance

2.4 a site specific risk assessment should take into consideration:

- Apparatus identification
- Apparatus condition
- Environmental conditions

2.6 Select and check - to include inspection of tools and equipment

3.1 points to be considered

- points of isolation
- earthing arrangements
- drain
- vent
- purge

Unit 326

Maintain compressed air systems

UAN:	UF45 04
Level:	6
Credit value:	16
GLH:	96
Assessment requirements specified by a sector or regulatory body:	This unit is endorsed by
Aim:	This unit is about maintaining compressed air systems in an electrical power engineering environment. It involves following set processes and procedures to ensure the system is safe to work on and the identification and control of hazards in the work area. It also involves the planning and organisation of resources to carry out maintenance activities and testing operations to ensure the completed maintenance work meets with technical specifications and organisational requirements.

Learning outcome
The learner will: 1. understand organisational procedures and legislative requirements for the maintenance of compressed air systems
Assessment criteria
The learner can: 1.1 describe the main principles of health and safety legislation and regulations relating to work on compressed air systems 1.2 describe roles and responsibilities of employees and employers in relation to organisational procedures and legislative requirements 1.3 explain the limitations of own job responsibility and reporting procedures for any work related problems 1.4 explain the hazards to be considered when planning to maintain compressed air systems 1.5 describe the organisational procedures for accidents, incidents and emergencies to include: a) fire b) injury to self and others c) threat of terrorism d) hazardous occurrences and near misses

- | |
|--|
| <p>1.6 explain the organisational procedures that need to be complied with when maintaining compressed air systems</p> <p>1.7 explain the processes and procedures that need to be complied with when receiving a safety document.</p> |
|--|

Learning outcome

The learner will:

- | |
|--|
| 2. be able to plan and prepare for the maintenance of compressed air systems |
|--|

Assessment criteria

The learner can:

- | |
|---|
| 2.1 identify the work location and compressed air system using company documentation and work instructions |
| 2.2 apply company work documentation to identify the work activity |
| 2.3 plan the activities required for maintaining compressed air systems |
| 2.4 carry out a site specific risk assessment in accordance with health and safety regulations |
| 2.5 select and wear Personal Protective Equipment (PPE) required for the job role |
| 2.6 identify and carry out a pre work inspection of the apparatus to be maintained in line with organisational procedures |
| 2.7 inspect suitable tools and equipment for use in line with organisational procedures |
| 2.8 inform those who will be directly and indirectly affected by the intended work plan. |

Learning outcome

The learner will:

- | |
|---|
| 3. be able to carry out the maintenance of compressed air systems |
|---|

Assessment criteria

The learner can:

- | |
|---|
| 3.1 confirm the system is safe to work on in accordance with organisational procedures |
| 3.2 implement control measures in line with company procedures to meet safe system requirements |
| 3.3 maintain compressed air systems in line with work plan and organisational procedures |
| 3.4 monitor control measures to ensure risks are minimised |
| 3.5 confirm the finished work meets organisational requirements and quality standards |
| 3.6 resolve problems within the limits of own job role responsibility |
| 3.7 report problems outside the limits of own responsibility to designated personnel. |

Learning outcome
The learner will: 4. be able to leave the work area in a safe condition according to required regulation and legislation
Assessment criteria
The learner can: 4.1 store tools and test equipment on completion of work activity 4.2 check the safe condition of the work area.

Unit 326 Maintain compressed air systems

Supporting information

Evidence requirements

You must provide your assessor with evidence for all the learning outcomes and assessment criteria. The evidence must be provided in the following ways taking into account any of the special considerations below.

You will need to provide evidence to show that on at least **two** different occasions you carried out the maintenance of substation compressed air systems:

Guidance

3.1 points to be considered

- receipt of a safety document
- points of isolation
- drain
- vent
- purge

Unit 327

Co-ordinate work activities on plant and apparatus

UAN:	UF20 04
Level:	6
Credit value:	17
GLH:	105
Assessment requirements specified by a sector or regulatory body:	This unit is endorsed by EU Skills
Aim:	This unit is about co-ordinating the work activities of others when working in an electrical power engineering environment. It involves meticulous planning and organisation of the tasks required to complete work activities and the identification and control hazards in accordance with organisational processes and procedures. It also involves the communication of information to others and the monitoring and inspection of work carried out to ensure it meets with organisational requirements.

Learning outcome
The learner will: 1. understand organisational procedures and legislative requirements for co-ordinating work activities on power plant and apparatus
Assessment criteria
The learner can: 1.1 describe the main principles of health and safety legislation and regulations applicable to work on power plant and apparatus 1.2 describe roles and responsibilities of employees and employers in relation to organisational procedures and legislative requirements 1.3 explain the limitations of own job responsibility and reporting procedures for any work related problems 1.4 explain the hazards to be considered when planning to co-ordinate work on power plant and apparatus 1.5 describe the organisational procedures for accidents, incidents and emergencies to include: a) fire b) injury to self and others c) threat of terrorism d) hazardous occurrences and near misses

1.6	explain the range of Personal Protective Equipment (PPE) required for the job role
1.7	describe the organisational requirements for the safe and secure storage of tools, equipment and materials
1.8	explain the organisational procedures that need to be complied with when coordinating work on power plant and apparatus
1.9	explain the processes and procedures that need to be complied with when receiving a safety document.

Learning outcome	
The learner will:	
2.	be able to plan and prepare to coordinate work activities on power plant and apparatus
Assessment criteria	
The learner can:	
2.1	identify the work location using company documentation and work instructions
2.2	apply organisational work documentation to identify the work activity
2.3	carry out a site specific risk assessment in accordance with health and safety regulations
2.4	plan control measures to minimise risk to life, property and the environment
2.5	plan the activities required to coordinate the work on power plant and apparatus
2.6	select and wear Personal Protective Equipment (PPE) required for the job role
2.7	inform those who will be directly and indirectly affected by the intended work plan
2.8	communicate to group members assigned tasks and responsibilities.

Learning outcome	
The learner will:	
3.	be able to coordinate work activities on power plant and apparatus
Assessment criteria	
The learner can:	
3.1	implement the work plan in line with organisational procedures to meet safe control system requirements
3.2	monitor the progress of the work plan and control measures to ensure risks are minimised
3.3	instruct the working party to ensure the assigned work is conducted in accordance with the work plan and organisational procedures
3.4	confirm the finished work meets organisational requirements and quality standards
3.5	record the results of the work implemented in accordance with organisational procedures

- | |
|---|
| 3.6 resolve problems within the limits of own job role responsibility |
| 3.7 report problems outside the limits of own responsibility to designated personnel. |

Learning outcome

The learner will: 4. be able to leave the work area in a safe condition according to required regulation and legislation

Assessment criteria

The learner can: 4.1 store tools and equipment on completion of work activity 4.2 dispose of waste materials and hazardous substances 4.3 check the safe condition of the work area.

Unit 327 Co-ordinate work activities on plant and apparatus

Supporting information

Evidence requirements

You must provide your assessor with evidence for all the learning outcomes and assessment criteria. The evidence must be provided in the following ways taking into account any of the special considerations below.

You need to provide evidence to show that you have coordinated work activities on **two** different types of plant and apparatus on **two** different occasions:

- planning and assigning work activities
- monitoring and coordinating work activities
- restoring and reinstating the work location
- using and communicating data and information
- resolving problems effectively and efficiently

Guidance

Examples could include the co-ordination of:

- Fitting – maintenance / installation activities on a circuit breaker, transformer, compressor etc
- Overhead Lines – maintenance / installation activities on a 3 phase transformer, air break switch, sectionaliser etc
- Jointing - maintenance / installation activities of HV cables, cable alterations, LV system works with more than one jointing team in attendance

Unit 329

Develop yourself in the work role

UAN:	UF47 04
Level:	6
Credit value:	6
GLH:	29
Assessment requirements specified by a sector or regulatory body:	This unit is endorsed by EU Skills
Aim:	This unit is about playing an active role in reviewing and setting objectives to improve upon and maintain your personal performance. It involves the use of self-assessment methods to establish and agree, with line management, how to achieve your development objectives.

Learning outcome
The learner will: 1. understand the requirements for developing yourself in the work role
Assessment criteria
The learner can: 1.1 describe roles and responsibilities of employees and employers in relation to health and safety 1.2 describe regulations and safe working practices and procedures 1.3 identify training and development opportunities to support personal development plans and objectives 1.4 describe self-assessment processes and techniques 1.5 describe how to build personal development plans and set measurable objectives 1.6 explain the limitations of own job responsibility and reporting procedures for any work related problems.

Learning outcome
The learner will: 2. be able to develop themselves in the work role
Assessment criteria
The learner can: 2.1 evaluate own level of competence and identify areas where personal development is needed

- 2.2 gain line management approval for the period of time and resources needed to achieve objectives
- 2.3 create a personal development plan which includes SMART objectives
- 2.4 implement the personal development plan
- 2.5 evaluate progress against the SMART objectives set and decide on future personal development actions where required
- 2.6 seek feedback on how to maintain and improve levels of performance.

Unit 329 Develop yourself in the work role

Supporting information

Guidance

You need to provide evidence to show that you have:

1. Played an active role in reviewing and developing yourself in the work role, whilst demonstrating that you understand the techniques and processes involved.
2. Actively sought feedback and guidance from sources such as: line management, personnel or training specialists, colleagues in your work team.
3. Participated in work role development activities by providing records of: courses, competence assessment, personal development plans, certificates.

Unit 330

Organise the use of resources for work on power networks

UAN:	UF21 04
Level:	6
Credit value:	17
GLH:	105
Relationship to NOS:	This unit is linked to the
Assessment requirements specified by a sector or regulatory body:	This unit is endorsed by EU Skills
Aim:	This unit has been designed to ensure level three candidates in an electrical power engineering environment are able to plan, organise and control resources for self and others.

Learning outcome
The learner will: 1. understand organisational procedures and legislative requirements to organise the use of resources for work on power networks
Assessment criteria
The learner can: 1.1 describe the main principles of health and safety legislation and regulations applicable to work on power plant and apparatus 1.2 describe roles and responsibilities of employees and employers in relation to organisational procedures and legislative requirements 1.3 explain the limitations of own job responsibility and reporting procedures for any work related problems 1.4 explain the hazards to be considered when coordinating the use of resources to be used for work on power networks 1.5 describe the organisational procedures for accidents, incidents and emergencies to include: a) fire b) injury to self and others c) threat of terrorism d) hazardous occurrences and near misses 1.6 explain the organisational procedures that need to be complied with when coordinating the use of resources for work on power networks.

Learning outcome
The learner will: 2. be able to plan and prepare to organise the use of resources for work on power networks
Assessment criteria
The learner can: 2.1 identify the work to be undertaken using company documentation and work instructions 2.2 develop a work plan to use resources which will meet work requirements and comply with organisational safety procedures 2.3 identify the activities required to organise the use of resources for work on power networks 2.4 inform those who will be directly and indirectly affected by the intended work plan 2.5 communicate to group members assigned tasks and responsibilities.

Learning outcome
The learner will: 3. be able to organise the use of resources for work on power networks
Assessment criteria
The learner can: 3.1 implement the work plan in line with organisational procedures to meet safe control system requirements 3.2 organise the use of the resources for the work required using organisational procedures and systems 3.3 monitor the progress of the work plan to ensure risks are minimised and resources are being used effectively 3.4 confirm the completed work plan meets organisational requirements and safety standards 3.5 record the results of the use of resources in accordance with organisational procedures 3.6 provide information to update safety systems records 3.7 resolve problems within the limits of own job role responsibility 3.8 report problems outside the limits of own responsibility to designated personnel.

Unit 330 Organise the use of resources for work on power networks

Evidence requirements

You must provide your assessor with evidence for all the learning outcomes and assessment criteria. The evidence must be provided in the following ways taking into account any of the special considerations below.

You will need to provide evidence to show that you have co-ordinated the use of resources on at least **two** different occasions for **all** of the following:

- a) People
- b) Materials
- c) Plant/Machinery
- d) Tools/Equipment

For example two resources on one occasion and two on another occasion.

Guidance

2.4 factors to be considered:

- group size
- activities assigned
- safety procedures
- weather
- traffic
- pedestrians
- barriers
- fencing
- obstructions

Unit 331

Produce, communicate and record technical information for work on power networks

UAN:	UF22 04
Level:	6
Credit value:	15
GLH:	90
Assessment requirements specified by a sector or regulatory body:	This unit is endorsed by EU Skills
Aim:	This unit has been designed to ensure that level three candidates in an electrical power engineering environment are able to produce written and diagrammatic technical information; communicate information to other parties; complete records relating to completed activities and performance.

Learning outcome
The learner will: 1. understand organisational procedures and legislative requirements for producing, communicating and recording technical information in relation to work on power networks.
Assessment criteria
The learner can: 1.1 describe the main principles of health and safety legislation and regulations applicable to work on power networks 1.2 describe roles and responsibilities of employees and employers in relation to organisational procedures and legislative requirements 1.3 describe the types of technical information used in relation to work on power networks. 1.4 describe the methods used to communicate technical information used in relation to work on power networks 1.5 describe the methods used to record technical information used in relation to work on power networks 1.6 explain the limitations of own job responsibility and reporting procedures for any work related problems 1.7 explain the hazards to be considered for work on power networks 1.8 describe the organisational procedures for accidents, incidents and emergencies to include: a) fire b) injury to self and others c) threat of terrorism

<p>d) hazardous occurrences and near misses</p> <p>1.9 explain the processes and procedures that need to be complied with when receiving and issuing a safety document.</p>

Learning outcome
The learner will:
2. be able to produce information for themselves and others to carry out work activities
Assessment criteria
The learner can:
2.1 produce written/electronic text information to allow work activities to be carried out.
2.2 produce diagrammatic/pictorial information to allow work activities to be carried out.

Learning outcome
The learner will:
3. be able to communicate technical information to others to carry out work activities
Assessment criteria
The learner can:
3.1 communicate technical information to others clearly and effectively
3.2 confirm that information has been understood and provide clarification when further information is required.

Learning outcome
The learner will:
4. be able to record/report technical information on work activities completed by themselves and others
Assessment criteria
The learner can:
4.1 complete documentation to record work activities completed by themselves and others
4.2 record all completed documentation in accordance with company procedures
4.3 report inconsistencies or inaccuracies in information sources to the appropriate person in line with company procedures
4.4 Report problems outside limits of your own responsibility to designated personnel.

Unit 331 Produce, communicate and record technical information for work on power networks

Supporting information

Evidence requirements

You need to provide evidence to show that you have produced, communicated and recorded technical information:

Outcome 2.1 Evidence to include **three** of the following:

- a) Risk assessments b) Method statements c) Planning documentation
- d) Resource ordering documentation e) Safety documentation
- f) Reference table/chart g) Job instructions h) Test schedules

Outcome 2.2 Evidence to include **three** of the following:

- a) Site plans/sketches b) Installation drawings c) Modification drawings,
- d) Repair drawings e) Connection/disconnection drawings
- f) Wiring/circuit diagrams g) Photographic information

Outcome 3.1 Evidence to include **all** of the following:

- a) Verbal to one person b) Verbal to more than one person
- c) Written/electronic text d) Diagrammatic/pictorial

Outcome 3.1 Evidence to include **three** of the following:

- a) Work instructions b) Safety documentation c) Updated plans/drawings
- d) Completed testing activities e) Reports

Unit 332

Low voltage substation switching operations

UAN:	UF48 04
Level:	6
Credit value:	11
GLH:	105
Assessment requirements specified by a sector or regulatory body:	This unit is endorsed by EU Skills
Aim:	This unit is about low voltage switching operations on plant and apparatus in an electricity power utilities environment. It includes the processes and procedures to be followed to make sure that the completed switching operation meets the standards set by the organisation. It also involves the rigorous application of rules, regulations and work instructions to ensure that work is performed and completed safely without causing risk of injury to self and others.

Learning outcome
The learner will: 1. understand organisational procedures and legislative requirements for low voltage substation switching operations
Assessment criteria
The learner can: 1.1 describe the main principles of health and safety legislation and regulations applicable to low voltage substation switching operations 1.2 describe roles and responsibilities of employees and employers in relation to organisational procedures and legislative requirements 1.3 explain the limitations of own job responsibility and reporting procedures for any work related problems 1.4 explain the hazards to be considered when planning low voltage substation switching operations 1.5 describe the organisational procedures for accidents, incidents and emergencies to include: a) fire b) injury to self and others c) threat of terrorism d) hazardous occurrences and near misses 1.6 explain the organisational procedures that need to be complied

<p>with when carrying out low voltage substation switching operations</p> <p>1.7 explain the processes and procedures that need to be complied with when receiving a safety document.</p>

Learning outcome
<p>The learner will:</p> <p>2. be able to plan and prepare to carry out low voltage substation switching operations</p>
Assessment criteria
<p>The learner can:</p> <p>2.1 identify the work location using organisational documentation and work instructions</p> <p>2.2 apply organisational work documentation to identify the operational requirements</p> <p>2.3 plan the activities required to carry out low voltage substation switching operations</p> <p>2.4 carry out a site specific risk assessment in accordance with health and safety regulations</p> <p>2.5 select and wear Personal Protective Equipment (PPE) required for the job role</p> <p>2.6 inspect the apparatus on which switching operations are to be conducted in accordance with organisational procedures</p> <p>2.7 select the appropriate tools and equipment required to carry out low voltage substation switching operations</p> <p>2.8 inform those who will be directly and indirectly affected by the intended work plan.</p>

Learning outcome
<p>The learner will:</p> <p>3. be able to carry out low voltage substation switching operations</p>
Assessment criteria
<p>The learner can:</p> <p>3.1 confirm the system is safe to be operated on in accordance with organisational procedures</p> <p>3.2 implement the work plan in line with organisational procedures to meet safe control system requirements</p> <p>3.3 carry out low voltage substation switching operations in accordance with organisational procedures</p> <p>3.4 confirm the finished work meets organisational requirements and quality standards</p> <p>3.5 record the results of the work implemented in accordance with organisational procedures</p> <p>3.6 provide information to update safety systems records</p> <p>3.7 resolve problems within the limits of own job role responsibility</p> <p>3.8 report problems outside the limits of own responsibility to designated personnel.</p>

Learning outcome
<p>The learner will:</p> <p>4. be able to leave the work area in a safe condition according to</p>

required regulation and legislation
Assessment criteria
The learner can: 4.1 store tools and equipment on completion of work activity 4.2 check the safe condition of the work area.

Unit 332 Low voltage substation switching operations

Supporting information

Evidence requirements

You must provide your assessor with evidence for all the learning outcomes and assessment criteria. The evidence must be provided in the following ways taking into account any of the special considerations below.

You need to provide evidence to show that you have carried out high voltage switching operations on **two** separate occasions

Evidence to include **four** of the following switching operations performed on separate occasions on a live low voltage network

- a) Removal of mains LV fuses
- b) Insertion of mains LV fuses
- c) Connection of LV links
- d) Disconnection of LV links
- e) Opening LV Isolator
- f) Closing LV Isolator

Guidance

Perform the switching operation using selected tools and equipment, in line with the work plan, risk assessment and Company procedures.

2.4 a site specific risk assessment should take into consideration:

- Apparatus identification
- Apparatus condition
- Environmental conditions – confined spaces, rain, wind, lightning

2.7 Select - to include inspection of insulation and condition of live working tools and equipment

3.1 points to be considered

- points of isolation
- earthing arrangements
- drain
- vent
- purge

Unit 333

Diagnostic testing and fault finding on power networks

UAN:	UF49 04
Level:	6
Credit value:	16
GLH:	96
Assessment requirements specified by a sector or regulatory body:	This unit is endorsed by EU Skills
Aim:	This unit is about locating and diagnosing faults on plant and apparatus in an electrical power engineering environment. It involves the rigorous use and application of diagnostic tools and techniques to establish the root cause of a fault. It also involves making recommendations on what actions need to be taken to rectify the fault.

Learning outcome
The learner will: 1. understand organisational procedures and legislative requirements for carrying out diagnostic testing and fault finding on power networks
Assessment criteria
The learner can: 1.1 describe the main principles of health and safety legislation and regulations applicable to work on power networks 1.2 describe roles and responsibilities of employees and employers in relation to organisational procedures and legislative requirements 1.3 explain the limitations of own job responsibility and reporting procedures for any work related problems 1.4 explain the hazards to be considered when carrying out diagnostic testing and fault finding on power networks 1.5 describe the organisational procedures for accidents, incidents and emergencies to include: a) fire b) injury to self and others c) threat of terrorism d) hazardous occurrences and near misses 1.6 explain the organisational procedures that need to be complied with when carrying out diagnostic testing and fault finding on power networks 1.7 explain the processes and procedures that need to be complied

with when receiving a safety document.

Learning outcome

The learner will:

2. be able to plan and prepare to carry out diagnostic testing and fault finding on power networks

Assessment criteria

The learner can:

- 2.1 identify the work location using organisational documentation and work instructions
- 2.2 apply organisational work documentation to identify the operational requirements
- 2.3 plan the activities required to carry out diagnostic testing and fault finding on power networks
- 2.4 carry out a site specific risk assessment in accordance with health and safety regulations
- 2.5 select and wear Personal Protective Equipment (PPE) required for the job role
- 2.6 inspect the equipment to be repaired in line with organisational procedures
- 2.7 select the appropriate tools and equipment required to carry out diagnostic testing and fault finding on power networks
- 2.8 inform those who will be directly and indirectly affected by the intended work plan.

Learning outcome

The learner will:

3. be able to carry out diagnostic testing and fault finding on power networks

Assessment criteria

The learner can:

- 3.1 confirm the system is safe to work on in accordance with organisational procedures
- 3.2 implement control measures in line with organisational procedures to meet safe control system requirements
- 3.3 carry out diagnostic operations in accordance with organisational procedures
- 3.4 identify the fault and recommend remedial actions
- 3.5 record the results of the fault diagnosis operations in accordance with organisational procedures
- 3.6 analyse and interpret the results of the diagnostic testing operations
- 3.7 resolve problems within the limits of own job role responsibility
- 3.8 report problems outside the limits of own responsibility to designated personnel.

Learning outcome
The learner will: 4. be able to leave the work area in a safe condition according to required regulation and legislation
Assessment criteria
The learner can: 4.1 store tools and equipment on completion of work activity 4.2 check the safe condition of the work area.

Supporting information

Evidence requirements

You must provide your assessor with evidence for all the learning outcomes and assessment criteria. The evidence must be provided in the following ways taking into account any of the special considerations below.

You need to provide evidence to show that you have carried out diagnostic operations to determine faults, using appropriate diagnostic techniques and selected tools and equipment on at least **three** of the following:

- a) Switch gear
- b) Transformers
- c) LV Boards
- d) Tap-changers
- e) CT's and VT's
- f) Panel wiring

Evidence to include the use of **all** of the following diagnostic techniques:

- a) Visual examination
- b) Physical examination
- c) Electrical testing

Evidence requirements

2.4. a site specific risk assessment should take into consideration:

- Apparatus identification
- Apparatus condition
- Environmental conditions – adequate lighting, rain, wind, lightning

2.6 Select tools – to include an inspection: instrument condition, insulation

3.2 safe systems may include

- receipt of a safety document
- points of isolation
- earthing arrangements
- drain
- vent
- purge

Unit 334

Protection testing on overcurrent and earth fault schemes

UAN:	UF50 04
Level:	6
Credit value:	16
GLH:	96
Assessment requirements specified by a sector or regulatory body:	This unit is endorsed by EU Skills
Aim:	This unit is about protection testing on overcurrent and earth fault schemes in an electrical power engineering environment. It includes the processes and procedures to be followed to make sure that tests are conducted and recorded in a manner that meets the quality assurance requirements and standards set by the organization.

Learning outcome
The learner will: 1. understand organisational procedures and legislative requirements for carrying protection testing on overcurrent and earth fault schemes
Assessment criteria
The learner can: 1.1 describe the main principles of health and safety legislation and regulations relating to work on power networks 1.2 describe roles and responsibilities of employees and employers in relation to organisational procedures and legislative requirements 1.3 explain the limitations of own job responsibility and reporting procedures for any work related problems 1.4 explain the hazards of conducting phasing out protection testing on overcurrent and earth fault schemes and the control measures used to control them 1.5 describe the organisational procedures for accidents, incidents and emergencies to include: a) fire b) injury to self and others c) threat of terrorism d) hazardous occurrences and near misses 1.6 explain the organisational procedures that need to be complied with when carrying out protection testing on overcurrent and earth

fault schemes.

Learning outcome

The learner will:

2. be able to plan and prepare to carry out protection testing on overcurrent and earth fault schemes

Assessment criteria

The learner can:

- 2.1 identify the work location using company documentation and work instructions
- 2.2 apply organisational work documentation to identify the work activity
- 2.3 plan the activities required for conducting protection testing on overcurrent and earth fault schemes
- 2.4 carry out a site specific risk assessment in accordance with health and safety regulations
- 2.5 select and wear personal protective equipment (PPE) required for the job role
- 2.6 select and carry out pre use checks on tools and equipment required for protection testing on overcurrent and earth fault schemes
- 2.7 carry out pre work inspection of the cable/s to be worked on in accordance with organisational procedures
- 2.8 inform those who will be directly and indirectly affected by the intended work plan.

Learning outcome

The learner will:

3. be able to carry out protection testing on overcurrent and earth fault schemes

Assessment criteria

The learner can:

- 3.1 implement control measures in line with organisational procedures to meet safe control system requirements
- 3.2 carry out protection testing on overcurrent and earth fault schemes in accordance with organisational procedures
- 3.3 monitor control measures to ensure risks are minimised
- 3.4 confirm the finished operation meets organisational requirements and quality standards
- 3.5 record the results of the operation in accordance with organisational procedures
- 3.6 resolve problems within the limits of own job responsibility
- 3.7 report problems outside the limits of own responsibility to designated personnel.

Learning outcome

The learner will: 4. be able to leave the work area in a safe condition according to required regulation and legislation
Assessment criteria
The learner can: 4.1 store tools and equipment on completion of work activity 4.2 check the safe condition of the work area.

Unit 334 Protection testing on overcurrent and earth fault schemes

Supporting information

Evidence requirements

You must provide your assessor with evidence for all the learning outcomes and assessment criteria. The evidence must be provided in the following ways taking into account any of the special considerations below.

You will need to provide evidence to show that that you have carried out Company approved protection testing on **three** separate occasions using selected tools and equipment, in line with the work plan, risk assessment and Company policy and procedures.

Evidence to include **four** of the following protection tests:

- a) Timing test
- b) Over-current and earth fault relay testing
- c) Functionality testing
- d) Directional over-current and earth fault relay testing
- e) Over/under voltage testing

Guidance

2.6 Select and check - to include inspection of tools and equipment

3.1 Control measures may include – receipt of a safety document, identification of circuit, signs/barriers, control/removal of hazards, person in attendance, condition of the apparatus to be worked on, environmental conditions – rain, wind, lightning

Unit 335

Pressure testing of high voltage distribution equipment

UAN:	UF51 04
Level:	6
Credit value:	16
GLH:	96
Assessment requirements specified by a sector or regulatory body:	This unit is endorsed by EU Skills
Aim:	This unit is about pressure testing of high voltage distribution equipment in an electrical power engineering environment. It includes the processes and procedures to be followed to make sure that tests are conducted and recorded in a manner that meets the quality assurance requirements and standards set by the organisation.

Learning outcome
The learner will: 1. understand organisational procedures and legislative requirements for carrying out pressure testing of high voltage distribution equipment
Assessment criteria
The learner can: 1.1 describe the main principles of health and safety legislation and regulations relating to testing operations on power networks 1.2 describe roles and responsibilities of employees and employers in relation to organisational procedures and legislative requirements 1.3 explain the limitations of own job responsibility and reporting procedures for any work related problems 1.4 explain the hazards of conducting pressure testing of high voltage distribution equipment and the control measures used to control them 1.5 describe the organisational procedures for accidents, incidents and emergencies to include: a) fire b) injury to self and others c) threat of terrorism d) hazardous occurrences and near misses 1.6 explain the organisational procedures that need to be complied with when carrying out pressure testing of high voltage distribution

equipment.

Learning outcome
The learner will: 2. be able to plan and prepare to carry out pressure testing of high voltage distribution equipment
Assessment criteria
The learner can: 2.1 identify the work location using company documentation and work instructions 2.2 apply organisational work documentation to identify the work activity 2.3 plan the activities required for conducting pressure testing of high voltage distribution equipment 2.4 carry out a site specific risk assessment in accordance with health and safety regulations 2.5 select and wear personal protective equipment (PPE) required for the job role 2.6 select and carry out pre use checks on tools and equipment required for pressure testing high voltage distribution equipment 2.7 carry out pre work inspection of the equipment to be tested in accordance with organisational procedures 2.8 inform those who will be directly and indirectly affected by the intended work plan.

Learning outcome
The learner will: 3. be able to carry out pressure testing of high voltage distribution equipment
Assessment criteria
The learner can: 3.1 implement control measures in line with organisational procedures to meet safe control system requirements 3.2 carry out pressure testing of high voltage distribution equipment in accordance with organisational procedures 3.3 monitor control measures to ensure risks are minimised 3.4 confirm the finished operation meets organisational requirements and quality standards 3.5 record the results of the testing operation in accordance with organisational procedures 3.6 resolve problems within the limits of own job responsibility 3.7 report problems outside the limits of own responsibility to designated personnel.

Learning outcome
The learner will:

4. be able to leave the work area in a safe condition according to required regulation and legislation
Assessment criteria
The learner can: 4.1 store tools and equipment on completion of work activity 4.2 check the safe condition of the work area.

Unit 335 Pressure testing of high voltage distribution equipment

Supporting information

Evidence requirements

You must provide your assessor with evidence for all the learning outcomes and assessment criteria. The evidence must be provided in the following ways taking into account any of the special considerations below.

You will need to provide evidence to show that that you have carried out pressure testing on **two** different systems in line with work plan, risk assessment and Company procedure. Evidence to include at least **two** of the following pressure tests:

- a) DC pressure testing b) AC pressure testing
- c) VLF testing d) Cable over-sheaf testing

Guidance

2.6 Select and check - to include inspection of tools and equipment

3.1 Control measures may include – receipt of a safety document, identification of circuit, signs/barriers, control/removal of hazards, person in attendance, condition of the apparatus to be worked on, environmental conditions – rain, wind, lightning

Unit 336

Install supervisory control and data acquisition (SCADA) systems

UAN:	UF52 04
Level:	6
Credit value:	4
GLH:	42
Assessment requirements specified by a sector or regulatory body:	This unit is endorsed by EU Skills
Aim:	This unit is about installing Supervisory Control and Data Acquisition (SCADA) systems in an electrical power engineering environment. It involves completing installation activities in a rigorous and methodical manner and the following of processes and procedures to make sure that the finishes work meets the quality assurance and operating specifications set by the organisation..

Learning outcome
The learner will: 1. understand organisational procedures and legislative requirements for installing Supervisory Control and Data Acquisition (SCADA) systems
Assessment criteria
The learner can: 1.1 describe the main principles of health and safety legislation and regulations relating to work on power networks 1.2 describe roles and responsibilities of employees and employers in relation to organisational procedures and legislative requirements 1.3 explain the limitations of own job responsibility and reporting procedures for any work related problems 1.4 explain the hazards of installing SCADA systems and the control measures used to control them 1.5 describe the organisational procedures for accidents, incidents and emergencies to include: a) fire b) injury to self and others c) threat of terrorism d) hazardous occurrences and near misses 1.6 explain the organisational procedures that need to be complied

<p>with when installing SCADA systems</p> <p>1.7 explain the processes and procedures that need to be complied with when receiving a safety document.</p>

Learning outcome
<p>The learner will:</p> <p>2. be able to plan and prepare to carry out the installation of SCADA systems</p>
Assessment criteria
<p>The learner can:</p> <p>2.1 identify the work location using company documentation and work instructions</p> <p>2.2 apply organisational work documentation to identify the work activity</p> <p>2.3 plan the activities required for installing SCADA systems</p> <p>2.4 carry out a site specific risk assessment in accordance with health and safety regulations</p> <p>2.5 select and wear personal protective equipment (PPE) required for the job role</p> <p>2.6 select and carry out pre use checks on tools and equipment required for installing SCADA systems</p> <p>2.7 carry out pre work inspection of the equipment to be worked on in accordance with organisational procedures</p> <p>2.8 inform those who will be directly and indirectly affected by the intended work plan.</p>

Learning outcome
<p>The learner will:</p> <p>3. be able to install SCADA systems</p>
Assessment criteria
<p>The learner can:</p> <p>3.1 implement control measures in line with organisational procedures to meet safe control system requirements</p> <p>3.2 install SCADA systems in accordance with organisational procedures</p> <p>3.3 monitor control measures to ensure risks are minimised</p> <p>3.4 confirm the finished operation meets organisational requirements and quality standards</p> <p>3.5 record the results of the operation in accordance with organisational procedures</p> <p>3.6 resolve problems within the limits of own job responsibility</p> <p>3.7 report problems outside the limits of own responsibility to designated personnel.</p>

Learning outcome
<p>The learner will:</p>

4. be able to leave the work area in a safe condition according to required regulation and legislation
Assessment criteria
The learner can: 4.1 store tools and equipment on completion of work activity 4.2 dispose of waste materials 4.3 check the safe condition of the work area.

Unit 336 Install supervisory control and data acquisition (SCADA) systems

Supporting information

Evidence requirements

You must provide your assessor with evidence for all the learning outcomes and assessment criteria. The evidence must be provided in the following ways taking into account any of the special considerations below.

You will need to provide evidence to show that that you have carried out the installation of a SCADA system and associated RTU equipment on **two** occasions in line with the work plan, risk assessment and Company procedures

Guidance

2.6 Select and check - to include inspection of tools and equipment

3.1 Control measures may include – receipt of a safety document, identification of circuit, signs/barriers, control/removal of hazards, person in attendance, condition of the apparatus to be worked on, environmental conditions – rain, wind, lightning

Unit 337

Install protective relays and metering equipment

UAN:	UF53 04
Level:	6
Credit value:	4
GLH:	42
Assessment requirements specified by a sector or regulatory body:	This unit is endorsed by EU Skills
Aim:	This unit is about installing protective relays and metering equipment in an electrical power engineering environment. It involves completing installation activities in a rigorous and methodical manner and the following of processes and procedures to make sure that the finishes work meets the quality assurance and operating specifications set by the organisation

Learning outcome
The learner will: 1. understand organisational procedures and legislative requirements for installing protective relays and metering equipment
Assessment criteria
The learner can: 1.1 describe the main principles of health and safety legislation and regulations relating to work on power networks 1.2 describe roles and responsibilities of employees and employers in relation to organisational procedures and legislative requirements 1.3 explain the limitations of own job responsibility and reporting procedures for any work related problems 1.4 explain the hazards of installing protective relays and metering equipment and the control measures used to control them 1.5 describe the organisational procedures for accidents, incidents and emergencies to include: a) fire b) injury to self and others c) threat of terrorism d) hazardous occurrences and near misses 1.6 explain the organisational procedures that need to be complied with when installing protective relays and metering equipment 1.7 explain the processes and procedures that need to be complied with when receiving a safety document.

Learning outcome
The learner will: 2. be able to plan and prepare to install protective relays and metering equipment
Assessment criteria
The learner can: 2.1 identify the work location using company documentation and work instructions 2.2 apply organisational work documentation to identify the work activity 2.3 plan the activities required to install protective relays and metering equipment 2.4 carry out a site specific risk assessment in accordance with health and safety regulations 2.5 select and wear personal protective equipment (PPE) required for the job role 2.6 select and carry out pre use checks on tools and equipment required to install protective relays and metering equipment 2.7 carry out pre work inspection of the equipment to be worked on in accordance with organisational procedures 2.8 inform those who will be directly and indirectly affected by the intended work plan.

Learning outcome
The learner will: 3. be able to install protective relays and metering equipment
Assessment criteria
The learner can: 3.1 implement control measures in line with organisational procedures to meet safe control system requirements 3.2 install protective relays and metering equipment in accordance with organisational procedures 3.3 monitor control measures to ensure risks are minimised 3.4 confirm the finished operation meets organisational requirements and quality standards 3.5 record the results of the operation in accordance with organisational procedures 3.6 resolve problems within the limits of own job responsibility 3.7 report problems outside the limits of own responsibility to designated personnel.

Learning outcome
The learner will:

4. be able to leave the work area in a safe condition according to required regulation and legislation
Assessment criteria
The learner can: 4.1 store tools and equipment on completion of work activity 4.2 dispose of waste materials 4.3 check the safe condition of the work area

Unit 337 Install protective relays and metering equipment

Supporting information

Evidence requirements

You must provide your assessor with evidence for all the learning outcomes and assessment criteria. The evidence must be provided in the following ways taking into account any of the special considerations below.

You will need to provide evidence to show that that you installed relays and metering equipment using selected tools and equipment, in line with the work plan, risk assessment and Company procedures. Evidence to include **four** of the following installations:

- a) Tripping relays b) Auxiliary relays c) Voltage regulating relays
- d) Auto-Reclose relays e) Closing Relays f) Voltmeter/Ammeter

Guidance

2.6 Select and check - to include inspection of tools and equipment

3.1 Control measures may include – receipt of a safety document, identification of circuit, signs/barriers, control/removal of hazards, , condition / position of the apparatus to be worked on,

Unit 338

Install high voltage current transformer metering equipment

UAN:	UF54 04
Level:	6
Credit value:	4
GLH:	42
Assessment requirements specified by a sector or regulatory body:	This unit is endorsed by EU Skills
Aim:	This unit is about installing high voltage current transformer (CT) metering equipment in an electrical power engineering environment. It involve completing installation activities in a rigorous and methodical manner and the following of processes and procedures to make sure that the finishes work meets the quality assurance and operating specifications set by the organisation

Learning outcome
The learner will: 1. understand organisational procedures and legislative requirements for installing high voltage current transformer metering equipment
Assessment criteria
The learner can: 1.1 describe the main principles of health and safety legislation and regulations relating to work on power networks 1.2 describe roles and responsibilities of employees and employers in relation to organisational procedures and legislative requirements 1.3 explain the limitations of own job responsibility and reporting procedures for any work related problems 1.4 explain the hazards of installing high voltage current transformer metering equipment and the control measures used to control them 1.5 describe the organisational procedures for accidents, incidents and emergencies to include: a) fire b) injury to self and others c) threat of terrorism d) hazardous occurrences and near misses 1.6 explain the organisational procedures that need to be complied

<p>with when installing high voltage current transformer metering equipment</p> <p>1.7 explain the processes and procedures that need to be complied with when receiving a safety document.</p>

<p>Learning outcome</p> <p>The learner will:</p> <p>2. be able to plan and prepare to install high voltage current transformer metering equipment</p>
<p>Assessment criteria</p> <p>The learner can:</p> <p>2.1 identify the work location using company documentation and work instructions</p> <p>2.2 apply organisational work documentation to identify the work activity</p> <p>2.3 plan the activities required to install installing high voltage current transformer metering equipment</p> <p>2.4 carry out a site specific risk assessment in accordance with health and safety regulations</p> <p>2.5 select and wear personal protective equipment (PPE) required for the job role</p> <p>2.6 select and carry out pre use checks on tools and equipment required to install high voltage current transformer metering equipment</p> <p>2.7 carry out pre work inspection of the equipment to be worked on in accordance with organisational procedures</p> <p>2.8 inform those who will be directly and indirectly affected by the intended work plan.</p>

<p>Learning outcome</p> <p>The learner will:</p> <p>3. be able to install high voltage current transformer metering equipment</p>
<p>Assessment criteria</p> <p>The learner can:</p> <p>3.1 implement control measures in line with organisational procedures to meet safe control system requirements</p> <p>3.2 install high voltage current transformer metering equipment in accordance with organisational procedures</p> <p>3.3 monitor control measures to ensure risks are minimised</p> <p>3.4 confirm the finished operation meets organisational requirements and quality standards</p> <p>3.5 record the results of the operation in accordance with organisational procedures</p> <p>3.6 resolve problems within the limits of own job responsibility</p> <p>3.7 report problems outside the limits of own responsibility to designated personnel.</p>

<p>Learning outcome</p>

The learner will: 4. be able to leave the work area in a safe condition according to required regulation and legislation
Assessment criteria
The learner can: 4.1 store tools and equipment on completion of work activity 4.2 dispose of waste materials 4.3 check the safe condition of the work area.

Unit 338 Install high voltage current transformer metering equipment

Supporting information

Evidence requirements

You must provide your assessor with evidence for all the learning outcomes and assessment criteria. The evidence must be provided in the following ways taking into account any of the special considerations below.

You will need to provide evidence to show that that you installed high voltage current transformer metering equipment on **two** occasions using selected tools and equipment, in line with the work plan, risk assessment and Company procedures

Guidance

2.6 Select and check - to include inspection of tools and equipment

3.1 Control measures may include – receipt of a safety document, identification of circuit, signs/barriers, control/removal of hazards, condition / position of the apparatus to be worked on

Unit 339

Diagnose faults on compressed air systems

UAN:	UF55 04
Level:	6
Credit value:	10
GLH:	66
Assessment requirements specified by a sector or regulatory body:	This unit is endorsed by EU Skills
Aim:	This unit is about locating and diagnosing faults on compressed air systems in an electrical power engineering environment. It involves the rigorous use and application of diagnostic tools and techniques to establish the root cause of a fault. It also involves making recommendations on what actions need to be taken to rectify the fault.

Learning outcome
The learner will: 1. understand organisational procedures and legislative requirements for diagnosing faults on compressed air systems
Assessment criteria
The learner can: 1.1 describe the main principles of health and safety legislation and regulations applicable to work on power networks 1.2 describe roles and responsibilities of employees and employers in relation to organisational procedures and legislative requirements 1.3 explain the limitations of own job responsibility and reporting procedures for any work related problems 1.4 explain the hazards to be considered when for carrying out diagnostic testing on compressed air systems 1.5 describe the organisational procedures for accidents, incidents and emergencies to include: a) fire b) injury to self and others c) threat of terrorism d) hazardous occurrences and near misses 1.6 explain the organisational procedures that need to be complied with when carrying out diagnostic fault finding on compressed air systems 1.7 explain the processes and procedures that need to be complied with when receiving a safety document.

Learning outcome

The learner will:

2. be able to plan and prepare to carry out diagnostic fault finding on compressed air systems

Assessment criteria

The learner can:

- 2.1 identify the work location using organisational documentation and work instructions
- 2.2 apply organisational work documentation to identify the operational requirements
- 2.3 plan the activities required to carry out diagnostic fault finding on compressed air systems
- 2.4 carry out a site specific risk assessment in accordance with health and safety regulations
- 2.5 select and wear Personal Protective Equipment (PPE) required for the job role
- 2.6 identify the compressed air system to be diagnosed in accordance with organisational procedures
- 2.7 select the appropriate tools and equipment required to carry out diagnostic testing and fault finding on compressed air systems
- 2.8 inform those who will be directly and indirectly affected by the intended work plan.

Learning outcome

The learner will:

3. be able to carry out diagnostic testing and fault finding on compressed air systems

Assessment criteria

The learner can:

- 3.1 implement control measures in line with organisational procedures to meet safe control system requirements
- 3.2 confirm the system is safe to carry out diagnostic testing operations in accordance with organisational procedures
- 3.3 carry out diagnostic operations in accordance with organisational procedures
- 3.4 identify the fault and recommend actions needed to effect a repair
- 3.5 record the results of the fault diagnosis operations in accordance with organisational procedures
- 3.6 analyse and interpret the results of the diagnostic testing operations
- 3.7 resolve problems within the limits of own job role responsibility
- 3.8 report problems outside the limits of own responsibility to designated personnel.

Learning outcome

The learner will: 4. be able to leave the work area in a safe condition according to required regulation and legislation
Assessment criteria
The learner can: 4.1 store tools and equipment on completion of work activity 4.2 check the safe condition of the work area.

Supporting information

Evidence requirements

You must provide your assessor with evidence for all the learning outcomes and assessment criteria. The evidence must be provided in the following ways taking into account any of the special considerations below.

You need to provide evidence to show that you have carried out diagnostic operations to diagnose faults on **two** separate compressed air systems, using appropriate diagnostic techniques and selected tools and equipment

Guidance

2.6 Select tools – to include an inspection of tools and equipment:

3.1 Control measures may include

- receipt of a safety document
- points of isolation
- drain
- vent
- purge

Unit 340

Low voltage cable fault location and diagnosis

UAN:	UF56 04
Level:	6
Credit value:	13
GLH:	130
Assessment requirements specified by a sector or regulatory body:	This unit is endorsed by EU Skills
Aim:	This unit is about diagnosing faults on compressed air systems in an electrical power engineering environment. It involves the rigorous use and application of diagnostic tools and techniques to establish the root cause of a fault. It also involves making recommendations on what actions need to be taken to rectify the fault

Learning outcome
The learner will: 1. understand organisational procedures and legislative requirements for low voltage cable fault location and diagnosis
Assessment criteria
The learner can: 1.1 describe the main principles of health and safety legislation and regulations applicable to work on power networks 1.2 describe roles and responsibilities of employees and employers in relation to organisational procedures and legislative requirements 1.3 explain the limitations of own job responsibility and reporting procedures for any work related problems 1.4 explain the hazards to be considered when planning to carry out low voltage cable fault location and diagnosis 1.5 describe the organisational procedures for accidents, incidents and emergencies to include: a) fire b) injury to self and others c) threat of terrorism d) hazardous occurrences and near misses 1.6 explain the organisational procedures that need to be complied with when carrying out low voltage cable fault location and diagnosis 1.7 explain the processes and procedures that need to be complied with when receiving a safety document.

Learning outcome
The learner will: 2. be able to plan and prepare to carry out low voltage cable fault location and diagnosis
Assessment criteria
The learner can: 2.1 identify the work location using organisational documentation and work instructions 2.2 apply organisational work documentation to identify the operational requirements 2.3 plan the activities required to carry out low voltage cable fault location and diagnosis 2.4 carry out a site specific risk assessment in accordance with health and safety regulations 2.5 select and wear Personal Protective Equipment (PPE) required for the job role 2.6 select the appropriate tools and equipment required to carry out low voltage cable fault location and diagnosis 2.7 inspect the apparatus on which fault location operations are to be conducted in accordance with organisational procedures 2.8 inform those who will be directly and indirectly affected by the intended work plan.

Learning outcome
The learner will: 3. be able to carry out low voltage cable fault location and diagnosis
Assessment criteria
The learner can: 3.1 confirm the system is safe to be operated on in accordance with organisational procedures 3.2 implement the work plan in line with organisational procedures to meet safe control system requirements 3.3 carry out fault location and diagnostic operations in accordance with organisational procedures 3.4 analyse and interpret the results of the diagnostic operations carried out to identify the fault location and root cause 3.5 confirm the finished work meets organisational requirements and quality standards 3.6 record the results of the fault location and diagnostic operations in accordance with organisational procedures 3.7 provide information to update safety systems records 3.8 resolve problems within the limits of own job role responsibility 3.9 report problems outside the limits of own responsibility to designated personnel.

Learning outcome
The learner will: 4. be able to leave the work area in a safe condition according to required regulation and legislation
Assessment criteria
The learner can: 4.1 store tools and equipment on completion of work activity 4.2 check the safe condition of the work area.

Unit 340 Low voltage cable fault location and diagnosis

Supporting information

Evidence requirements

You must provide your assessor with evidence for all the learning outcomes and assessment criteria. The evidence must be provided in the following ways taking into account any of the special considerations below.

You need to provide evidence to show that you have carried out high voltage switching operations on **two** separate occasions

Evidence to include **four** of the following switching operations performed on separate occasions on a live low voltage network

Perform diagnostic operations to determine faults, using appropriate diagnostic techniques on at least **three** of the following:

- a) Switch gear
- b) Transformers
- c) LV Boards
- d) Tap-changers
- e) CT's and VT's f) Panel wiring

Evidence to include the use of **all** of the following diagnostic techniques:

- a) Visual examination
- b) Physical examination
- c) Electrical testing

Guidance

2.4 a site specific risk assessment should take into consideration:

- Apparatus condition
- Environmental conditions – confined spaces, rain, wind, lightning

2.6 Select - to include inspection of the tools, equipment and ppe to be used

3.1 points to be considered

- points of isolation
- earthing arrangements
- drain
- vent
- purge

3.2 Control measures may include - identification of correct cable, signs/barriers, control/removal of hazards, person in attendance, traffic control, excavation shuttering

Unit 341

Fibre optic fusion splicing and terminations

UAN:	UF57 04
Level:	6
Credit value:	4
GLH:	42
Assessment requirements specified by a sector or regulatory body:	This unit is endorsed by
Aim:	This unit is about performing fibre optic fusion splicing and terminations in an electrical power engineering environment. It includes the processes and procedures to be followed to make sure that the completed work meets the quality assurance and operating specifications set by the organisation. It also involves following and complying with health and safety measures to minimise the risk of harm and injury to self and others when undertaking and completing jointing work activities.

Learning outcome
The learner will: 1. understand organisational procedures and legislative requirements for carrying out fibre optic fusion splicing and terminations
Assessment criteria
The learner can: 1.1 describe the main principles of health and safety legislation and regulations relating to working with fibre optic cables 1.2 describe roles and responsibilities of employees and employers in relation to organisational procedures and legislative requirements 1.3 explain the limitations of own job responsibility and reporting procedures for any work related problems 1.4 explain the hazards of working on fibre optic cables and the control measures used to control them 1.5 explain what materials and substances are hazardous to health in relation to job role 1.6 explain the hazards of working in and around excavations and the measures used to control them 1.7 describe the organisational procedures for accidents, incidents and emergencies to include: a) fire

<ul style="list-style-type: none"> b) injury to self and others c) threat of terrorism d) hazardous occurrences and near misses <p>1.8 explain the organisational procedures that need to be complied with when carrying out fibre optic fusion splicing and terminations.</p>

Learning outcome
The learner will:
2. be able to plan and prepare carrying out fibre optic fusion splicing and terminations
Assessment criteria
The learner can:
2.1 identify the work location using company documentation and work instructions
2.2 apply organisational work documentation to identify the work activity
2.3 plan the activities required for work on carrying out fibre optic cables
2.4 carry out a site specific risk assessment in accordance with health and safety regulations
2.5 select and wear personal protective equipment (PPE) required for the job role
2.6 select and carry out pre use checks on tools and equipment required for work on fibre optic cables
2.7 carry out pre work inspection of the fibre optic cable/s to be worked on in accordance with organisational procedures
2.8 inform those who will be directly and indirectly affected by the intended work plan.

Learning outcome
The learner will:
3. be able to carry out fibre optic fusion splicing and terminations
Assessment criteria
The learner can:
3.1 implement control measures in line with organisational procedures to meet safe control system requirements
3.2 carry out testing operations on fibre optic cables in accordance with organisational procedures
3.3 carry out fibre optic splicing operations in line with work plan and organisational procedures
3.4 monitor control measures to ensure risks are minimised
3.5 confirm the finished work meets organisational requirements and quality standards
3.6 record the results of the work implemented in accordance with organisational procedures
3.7 resolve problems within the limits of own job responsibility
3.8 report problems outside the limits of own responsibility to designated personnel.

Learning outcome
The learner will: 4. be able to leave the work area in a safe condition according to required regulation and legislation
Assessment criteria
The learner can: 4.1 store tools and equipment on completion of work activity 4.2 dispose of waste materials and hazardous substances 4.3 check the safe condition of the work area.

Unit 341 Fibre optic fusion splicing and terminations

Supporting information

Evidence requirements

You must provide your assessor with evidence for all the learning outcomes and assessment criteria. The evidence must be provided in the following ways taking into account any of the special considerations below.

You will need to provide evidence to show that on at least **two** different occasions you carried out **all** of the following:

Perform fibre optic fusion operations, using selected tools and equipment, in line with work plan, risk assessment and Company procedures. Evidence to include **two** separate operations using **one** of the following jointing techniques:

- a) Arc fusion
- b) Mechanical

And **one** of the following cable types:

- a) Single mode
- b) Multi mode

Guidance

2.6 Select and check - to include inspection of insulation and condition of PPE, tools and equipment

3.1 Control measures may include – receipt of a safety document, identification of correct cable, signs/barriers, control/removal of hazards, person in attendance, traffic control, excavation shuttering

Unit 342

Phasing out of high voltage cables

UAN:	UF58 04
Level:	6
Credit value:	15
GLH:	150
Assessment requirements specified by a sector or regulatory body:	This unit is endorsed by EU Skills
Aim:	This unit is about phasing out high voltage cables in an electrical power engineering environment. It involves making sure that the procedures and work instructions used to complete this work are followed and applied rigorously and safely and that the finished work meets the quality assurance and operating requirements set by the organisation.

Learning outcome
The learner will: 1. understand organisational procedures and legislative requirements for conducting phasing out operations on high voltage cables
Assessment criteria
The learner can: 1.1 describe the main principles of health and safety legislation and regulations relating to work on power networks 1.2 describe roles and responsibilities of employees and employers in relation to organisational procedures and legislative requirements 1.3 explain the limitations of own job responsibility and reporting procedures for any work related problems 1.4 explain the hazards of conducting phasing out operations on high voltage cables and the control measures used to control them 1.5 describe the organisational procedures for accidents, incidents and emergencies to include: a) fire b) injury to self and others c) threat of terrorism d) hazardous occurrences and near misses 1.6 explain the organisational procedures that need to be complied with when phasing out high voltage cables 1.7 explain the processes and procedures that need to be complied with when receiving a safety document.

Learning outcome
The learner will: 2. be able to plan and prepare to conduct phasing out operations on high voltage cables
Assessment criteria
The learner can: 2.1 identify the work location using company documentation and work instructions 2.2 apply organisational work documentation to identify the work activity 2.3 plan the activities required for conducting phasing out operations on high voltage cables 2.4 carry out a site specific risk assessment in accordance with health and safety regulations 2.5 select and wear personal protective equipment (PPE) required for the job role 2.6 select and carry out pre use checks on tools and equipment required for phasing out operations on high voltage cables 2.7 carry out pre work inspection of the cable/s to be worked on in accordance with organisational procedures 2.8 inform those who will be directly and indirectly affected by the intended work plan.

Learning outcome
The learner will: 3. be able to conduct phasing out operations on high voltage cables
Assessment criteria
The learner can: 3.1 implement control measures in line with organisational procedures to meet safe control system requirements 3.2 carry out phasing out operations on high voltage cables in accordance with organisational procedures 3.3 monitor control measures to ensure risks are minimised 3.4 confirm the finished operation meets organisational requirements and quality standards 3.5 record the results of the operation in accordance with organisational procedures 3.6 resolve problems within the limits of own job responsibility 3.7 report problems outside the limits of own responsibility to designated personnel.

Learning outcome
The learner will: 4. be able to leave the work area in a safe condition according to required regulation and legislation
Assessment criteria
The learner can: 4.1 store tools and equipment on completion of work activity

4.2 check the safe condition of the work area.

Unit 342 cables

Phasing out of high voltage

Supporting information

Evidence requirements

You must provide your assessor with evidence for all the learning outcomes and assessment criteria. The evidence must be provided in the following ways taking into account any of the special considerations below.

You will need to provide evidence to show that that you have carried out Company approved phasing out operations on **three** separate occasions using selected tools and equipment, in line with the work plan, risk assessment and Company policy and procedures.

Guidance

2.6 Select and check - to include inspection of insulation and condition of live working tools and equipment

3.1 Control measures may include – receipt of a safety document, identification of circuit, signs/barriers, control/removal of hazards, person in attendance, condition of the cables to be worked on, environmental conditions – rain, wind, lightning

Unit 343

Inspect and maintain oil and gas filled cable systems

UAN:	UF59 04
Level:	6
Credit value:	7
GLH:	36
Assessment requirements specified by a sector or regulatory body:	This unit is endorsed by EU Skills
Aim:	This unit is about inspecting and maintaining oil and gas filled cable systems in an electrical power engineering environment. It includes the processes and procedures that need to be rigorously and methodically followed to make sure that the finished work meets the quality assurance and operating specifications set by the organisation. It also involves using a range of tools and equipment that are fit for purpose and the wearing of personal protective equipment when performing work activities.

Learning outcome
The learner will: 1. understand organisational procedures and legislative requirements for the inspection and maintenance of oil and gas filled cable systems
Assessment criteria
The learner can: 1.1 describe the main principles of health and safety legislation and regulations applicable to the inspection and maintenance of oil and gas filled cable systems 1.2 describe roles and responsibilities of employees and employers in relation to organisational procedures and legislative requirements 1.3 explain the limitations of own job responsibility and reporting procedures for any work related problems 1.4 explain the hazards to be considered when planning for the inspection and maintenance of oil and gas filled cable systems 1.5 explain what materials and substances are hazardous to health in relation to job role 1.6 explain the the hazards of working in and around excavations and the measures used to control them 1.7 describe the organisational procedures for accidents, incidents and emergencies to include:

<ul style="list-style-type: none"> a) fire b) injury to self and others c) threat of terrorism d) hazardous occurrences and near misses <p>1.8 explain the organisational procedures that need to be complied with when carrying out the inspection and maintenance of oil and gas filled cable systems</p> <p>1.9 explain the processes and procedures that need to be complied with when receiving a safety document.</p>

Learning outcome
The learner will:
2. be able to plan and prepare for the inspection and maintenance of oil and gas filled cable systems
Assessment criteria
The learner can:
2.1 identify the work location using company documentation and work instructions
2.2 apply organisational work documentation to identify the work activity
2.3 plan the activities required for the inspection and maintenance of oil and gas filled cable systems
2.4 carry out a site specific risk assessment in accordance with health and safety regulations
2.5 select and wear personal protective equipment (PPE) required for the job role
2.6 select and carry out pre use checks on tools and equipment required for the inspection and maintenance of oil and gas filled cable systems
2.7 carry out pre work inspection of the underground cable/s to be worked on in accordance with organisational procedures
2.8 inform those who will be directly and indirectly affected by the intended work plan.

Learning outcome
The learner will:
3. be able to carry out the inspection and maintenance of oil and gas filled cable systems
Assessment criteria
The learner can:
3.1 implement control measures in line with organisational procedures to meet safe control system requirements
3.2 carry out testing operations on oil and gas filled cable systems in accordance with organisational procedures
3.3 carry out the inspection and maintenance of oil and gas filled cable systems in line with work plan and organisational procedures
3.4 monitor control measures to ensure risks are minimised
3.5 confirm the finished work meets organisational requirements and quality standards
3.6 record the results of the work implemented in accordance with

organisational procedures
3.7 resolve problems within the limits of own job responsibility
3.8 report problems outside the limits of own responsibility to designated personnel.

Learning outcome

The learner will:
4. be able to leave the work area in a safe condition according to required regulation and legislation

Assessment criteria

The learner can:
4.1 store tools and equipment on completion of work activity
4.2 dispose of waste materials and hazardous substances
4.3 check the safe condition of the work area.

Unit 343 Inspect and maintain oil and gas filled cable systems

Supporting information

Evidence requirements

You must provide your assessor with evidence for all the learning outcomes and assessment criteria. The evidence must be provided in the following ways taking into account any of the special considerations below.

You need to provide evidence to show that you have carried out the inspection and maintenance of oil and gas filled cable systems on **two** separate occasions

Guidance

2.4 a site specific risk assessment should take into consideration:

- Apparatus condition
- Environmental conditions – confined spaces, rain, wind, lightning

2.6 Select - to include inspection of the tools, equipment and ppe to be used

3.1 Control measures may include - identification of correct cable, signs/barriers, control/removal of hazards, person in attendance, traffic control, excavation shuttering

Unit 344

Low voltage overhead line switching operations

UAN:	UF60 04
Level:	6
Credit value:	11
GLH:	105
Assessment requirements specified by a sector or regulatory body:	This unit is endorsed by EU Skills
Aim:	This unit is about low voltage overhead line switching operations in an electrical power engineering environment. It includes the processes and procedures to be followed to make sure that the completed switching operation meets the standards set by the organisation. It also involves the rigorous application of rules, regulations and work instructions to ensure that work is performed and completed safely without causing risk of injury to self and others.

Learning outcome
The learner will: 1. understand organisational procedures and legislative requirements for low voltage switching operations
Assessment criteria
The learner can: 1.1 describe the main principles of health and safety legislation and regulations applicable to low voltage switching operations 1.2 describe roles and responsibilities of employees and employers in relation to organisational procedures and legislative requirements 1.3 explain the limitations of own job responsibility and reporting procedures for any work related problems 1.4 explain the hazards to be considered when planning low voltage switching operations 1.5 describe the organisational procedures for accidents, incidents and emergencies to include: a) fire b) injury to self and others c) threat of terrorism d) hazardous occurrences and near misses 1.6 explain the organisational procedures that need to be complied with when carrying out low voltage switching operations

1.7 explain the processes and procedures that need to be complied with when receiving a safety document.

Learning outcome

The learner will:

2. be able to plan and prepare to carry out low voltage switching operations

Assessment criteria

The learner can:

- 2.1 identify the work location using organisational documentation and work instructions
- 2.2 apply organisational work documentation to identify the operational requirements
- 2.3 plan the activities required to carry out low voltage switching operations
- 2.4 carry out a site specific risk assessment in accordance with health and safety regulations
- 2.5 select and wear Personal Protective Equipment (PPE) required for the job role
- 2.6 select the appropriate tools and equipment required to carry out low voltage switching operations
- 2.7 inspect the apparatus on which switching operations are to be conducted in accordance with organisational procedures
- 2.8 inform those who will be directly and indirectly affected by the intended work plan.

Learning outcome

The learner will:

3. be able to carry out low voltage switching operations

Assessment criteria

The learner can:

- 3.1 confirm the system is safe to be operated on in accordance with organisational procedures
- 3.2 implement the work plan in line with organisational procedures to meet safe control system requirements
- 3.3 carry out low voltage switching operations in accordance with organisational procedures
- 3.4 confirm the finished work meets organisational requirements and quality standards
- 3.5 record the results of the work implemented in accordance with organisational procedures
- 3.6 resolve problems within the limits of own job role responsibility
- 3.7 report problems outside the limits of own responsibility to designated personnel.

Learning outcome

The learner will:

4. be able to leave the work area in a safe condition according to required regulation and legislation

Assessment criteria

The learner can:

- 4.1 store tools and equipment on completion of work activity
- 4.2 check the safe condition of the work area.

Supporting information

Evidence requirements

You must provide your assessor with evidence for all the learning outcomes and assessment criteria. The evidence must be provided in the following ways taking into account any of the special considerations below.

You need to provide evidence to show that you have carried out live low voltage overhead line switching operations on **three** of the following:

- a) Pole mounted LV mains fuses
- b) Overhead line bows/jumpers
- c) Overhead line isolators
- d) Ground mounted LV mains fuses/links
- e) Transformer links
- f) Castle/Interlocked systems

Guidance

2.4 a site specific risk assessment should take into consideration:

- Apparatus identification
- Apparatus condition
- Environmental conditions – confined spaces, rain, wind, lightning

3.1 points to be considered

- points of isolation
- earthing arrangements
- drain
- vent
- purge

UAN:	UF61 04
Level:	6
Credit value:	13
GLH:	130
Assessment requirements specified by a sector or regulatory body:	This unit is endorsed by EU Skills
Aim:	This unit is about overhead line fault diagnosis in an electrical power engineering environment. It involves the rigorous use and application of diagnostic tools and techniques to establish the root cause of a fault. It also involves making recommendations on what actions need to be taken to rectify the fault.

Learning outcome
The learner will: 1. understand organisational procedures and legislative requirements for overhead line fault diagnosis
Assessment criteria
The learner can: 1.1 describe the main principles of health and safety legislation and regulations applicable to work on overhead line networks 1.2 describe roles and responsibilities of employees and employers in relation to organisational procedures and legislative requirements 1.3 explain the limitations of own job responsibility and reporting procedures for any work related problems 1.4 explain the hazards to be considered when carrying out overhead line fault diagnosis 1.5 describe the organisational procedures for accidents, incidents and emergencies to include: a) fire b) injury to self and others c) threat of terrorism d) hazardous occurrences and near misses 1.6 explain the organisational procedures that need to be complied with when carrying out overhead line fault diagnosis 1.7 explain the processes and procedures that need to be complied with when receiving a safety document.

Learning outcome
The learner will: 2. be able to plan and prepare to diagnose faults on overhead line networks
Assessment criteria
The learner can: 2.1 identify the work location using organisational documentation and work instructions 2.2 apply organisational work documentation to identify the operational requirements 2.3 plan the activities required to carry out overhead line fault diagnosis operations 2.4 carry out a site specific risk assessment in accordance with health and safety regulations 2.5 select and wear Personal Protective Equipment (PPE) required for the job role 2.6 identify the faulted apparatus to be diagnosed, including its points of isolation in accordance with organisational procedures 2.7 select the appropriate tools and equipment required to carry out overhead line fault diagnosis operations 2.8 inform those who will be directly and indirectly affected by the intended work plan.

Learning outcome
The learner will: 3. be able to carry out overhead line fault diagnosis
Assessment criteria
The learner can: 3.1 confirm the system is safe to work on in accordance with organisational procedures 3.2 implement the work plan in line with organisational procedures to meet safe control system requirements 3.3 carry out overhead line fault diagnosis operations in accordance with organisational procedures 3.4 confirm the finished work meets organisational requirements and quality standards 3.5 record the results of the fault diagnosis in accordance with organisational procedures 3.6 review and analyse the results of the fault diagnosis operations 3.7 identify the fault and recommend actions needed to effect a repair 3.8 resolve problems within the limits of own job role responsibility 3.9 report problems outside the limits of own responsibility to designated personnel.

Learning outcome

The learner will: 4. be able to leave the work area in a safe condition according to required regulation and legislation
Assessment criteria
The learner can: 4.1 store tools and equipment on completion of work activity 4.2 check the safe condition of the work area.

Unit 345 Overhead line fault diagnosis

Supporting information

Evidence requirements

You must provide your assessor with evidence for all the learning outcomes and assessment criteria. The evidence must be provided in the following ways taking into account any of the special considerations below.

You need to provide evidence to show that you have determine the type and position of a fault on **both** high voltage and low voltage overhead networks. Evidence to including the use of **all** of the following diagnostic techniques:

- a) Visual examination
- b) Physical examination
- c) Electrical testing
- d) Interpretation of information from plans
(e.g. two techniques on a high voltage fault and two on a low voltage fault)

Guidance

2.4. a site specific risk assessment should take into consideration:

- Apparatus identification
- Apparatus condition
- Environmental conditions – adequate lighting, rain, wind, lightning

Unit 346

High voltage live line operations using insulated rods

UAN:	UF62 04
Level:	6
Credit value:	4
GLH:	42
Assessment requirements specified by a sector or regulatory body:	This unit is endorsed by
Aim:	This unit is about high voltage live line operations using insulated rods. It involves inspecting the completed work to make sure it meets quality assurance and operating requirements. It also involves the following of procedures to ensure that safe working practices are adopted throughout the duration of the work.

Learning outcome
The learner will: 1. understand organisational procedures and legislative requirements for high voltage live line operations
Assessment criteria
The learner can: 1.1 describe the main principles of health and safety legislation and regulations applicable to high voltage live line operations 1.2 describe roles and responsibilities of employees and employers in relation to organisational procedures and legislative requirements 1.3 explain the limitations of own job responsibility and reporting procedures for any work related problems 1.4 explain the hazards to be considered when planning high voltage live line operations 1.5 describe the organisational procedures for accidents, incidents and emergencies to include: a) fire b) injury to self and others c) threat of terrorism d) hazardous occurrences and near misses 1.6 explain the organisational procedures that need to be complied with when carrying out high voltage live line operations 1.7 explain the processes and procedures that need to be complied

with when receiving a safety document.

Learning outcome

The learner will:

2. be able to plan and prepare to carry out high voltage live line operations

Assessment criteria

The learner can:

- 2.1 identify the work location using organisational documentation and work instructions
- 2.2 apply organisational work documentation to identify the operational requirements
- 2.3 plan the activities required to carry out high voltage live line operations
- 2.4 carry out a site specific risk assessment in accordance with health and safety regulations
- 2.5 select and wear Personal Protective Equipment (PPE) required for the job role
- 2.6 identify the system to be worked on, including its points of isolation in accordance with organisational procedures
- 2.7 inspect the system on which live line operations are to be conducted in accordance with organisational procedures
- 2.8 select the appropriate tools and equipment required to carry out high voltage live line operations
- 2.9 inform those who will be directly and indirectly affected by the intended work plan.

Learning outcome

The learner will:

3. be able to carry out high voltage live line operations

Assessment criteria

The learner can:

- 3.1 confirm the system is safe to be operated on in accordance with organisational procedures
- 3.2 carry out high voltage live line operations in accordance with organisational procedures
- 3.3 confirm the completed live line operation has achieved the operational objective
- 3.4 record the live line operation in accordance with organisational procedures
- 3.5 resolve problems within the limits of own job role responsibility
- 3.6 report problems outside the limits of own responsibility to designated personnel.

Learning outcome

The learner will:

4. be able to leave the work area in a safe condition according to required regulation and legislation

Assessment criteria

The learner can:

- 4.1 store tools and equipment on completion of work activity
- 4.2 check the safe condition of the work area.

Unit 346 High voltage live line operations using insulated rods

Supporting information

Evidence requirements

You must provide your assessor with evidence for all the learning outcomes and assessment criteria. The evidence must be provided in the following ways taking into account any of the special considerations below.

You need to provide evidence to show that you have carried out Company approved high voltage live line operations on **three** separate occasions.

Guidance

2.4. a site specific risk assessment should take into consideration:

- Apparatus identification
- Apparatus condition
- Environmental conditions – visibility, rain, wind, lightning

3.1 points to be considered

- points of isolation
- earthing arrangements
- drain
- vent
- purge

Unit 347

High voltage hot stick operations

UAN:	UF63 04
Level:	6
Credit value:	4
GLH:	42
Assessment requirements specified by a sector or regulatory body:	This unit is endorsed by EU Skills
Aim:	This unit is about high voltage hot stick operations in an electrical power engineering environment. It involves inspecting the completed work to make sure it meets quality assurance and operating requirements. It also involves the following of procedures to ensure that safe working practices are adopted throughout the duration of the work.

Learning outcome
The learner will: 1. understand organisational procedures and legislative requirements for high voltage hot stick operations
Assessment criteria
The learner can: 1.1 describe the main principles of health and safety legislation and regulations applicable to high voltage overhead line operations 1.2 describe roles and responsibilities of employees and employers in relation to organisational procedures and legislative requirements 1.3 explain the limitations of own job responsibility and reporting procedures for any work related problems 1.4 explain the hazards to be considered when planning high voltage hot stick operations 1.5 describe the organisational procedures for accidents, incidents and emergencies to include: a) fire b) injury to self and others c) threat of terrorism d) hazardous occurrences and near misses 1.6 explain the organisational procedures that need to be complied with when carrying out high voltage hot stick operations 1.7 explain the processes and procedures that need to be complied with when receiving a safety document.

Learning outcome

The learner will:

2. be able to plan and prepare to carry out high voltage hot stick operations

Assessment criteria

The learner can:

- 2.1 identify the work location using organisational documentation and work instructions
- 2.2 apply organisational work documentation to identify the operational requirements
- 2.3 plan the activities required to carry out hot stick operations
- 2.4 carry out a site specific risk assessment in accordance with health and safety regulations
- 2.5 select and wear Personal Protective Equipment (PPE) required for the job role
- 2.6 identify the system to be worked on, including its points of isolation in accordance with organisational procedures
- 2.7 inspect the apparatus on which hot stick operations are to be conducted in accordance with organisational procedures
- 2.8 select the appropriate tools and equipment required to carry out hot stick operations
- 2.9 inform those who will be directly and indirectly affected by the intended work plan.

Learning outcome

The learner will:

3. be able to carry out hot stick operations

Assessment criteria

The learner can:

- 3.1 confirm the system is safe to be operated on in accordance with organisational procedures
- 3.2 implement the work plan in line with organisational procedures to meet safe control system requirements
- 3.3 carry out hot stick operations in accordance with organisational procedures
- 3.4 confirm the finished work meets organisational requirements and quality standards
- 3.5 record the results of the work implemented in accordance with organisational procedures
- 3.6 resolve problems within the limits of own job role responsibility
- 3.7 report problems outside the limits of own responsibility to designated personnel.

Learning outcome

The learner will: 4. be able to leave the work area in a safe condition according to required regulation and legislation
Assessment criteria
The learner can: 4.1 store tools and equipment on completion of work activity 4.2 check the safe condition of the work area.

Supporting information

Evidence requirements

You must provide your assessor with evidence for all the learning outcomes and assessment criteria. The evidence must be provided in the following ways taking into account any of the special considerations below.

You need to provide evidence to show that you have carried out Company approved high voltage hot stick operations on **three** separate occasions.

Guidance

2.4. a site specific risk assessment should take into consideration:

- Apparatus identification
- Apparatus condition
- Environmental conditions – visibility, rain, wind, lightning

3.1 points to be considered

- points of isolation
- earthing arrangements
- drain
- vent
- purge

Unit 348

Hot glove operations

UAN:	UF64 04
Level:	6
Credit value:	15
GLH:	150
Assessment requirements specified by a sector or regulatory body:	This unit is endorsed by EU Skills
Aim:	This unit is about hot glove operations in an electrical power engineering environment. It involves inspecting the completed work to make sure it meets quality assurance and operating requirements. It also involves the following of procedures to ensure that safe working practices are adopted throughout the duration of the work.

Learning outcome
The learner will: 1. understand organisational procedures and legislative requirements for hot glove operations
Assessment criteria
The learner can: 1.1 describe the main principles of health and safety legislation and regulations applicable to high voltage overhead line operations 1.2 describe roles and responsibilities of employees and employers in relation to organisational procedures and legislative requirements 1.3 explain the limitations of own job responsibility and reporting procedures for any work related problems 1.4 explain the hazards to be considered when planning hot glove operations 1.5 describe the organisational procedures for accidents, incidents and emergencies to include: a) fire b) injury to self and others c) threat of terrorism d) hazardous occurrences and near misses 1.6 explain the organisational procedures that need to be complied with when carrying out high voltage hot glove operations 1.7 explain the processes and procedures that need to be complied with when receiving a safety document.

Learning outcome

The learner will: 2. be able to plan and prepare to carry out hot glove operations
Assessment criteria
The learner can: 2.1 identify the work location using organisational documentation and work instructions 2.2 apply organisational work documentation to identify the operational requirements 2.3 plan the activities required to carry out hot glove operations 2.4 carry out a site specific risk assessment in accordance with health and safety regulations 2.5 select and wear Personal Protective Equipment (PPE) required for the job role 2.6 identify the system to be worked on, including its points of isolation in accordance with organisational procedures 2.7 inspect the apparatus on which hot glove operations are to be conducted in accordance with organisational procedures 2.8 select the appropriate tools and equipment required to carry out hot glove operations 2.9 inform those who will be directly and indirectly affected by the intended work plan.

Learning outcome
The learner will: 3. be able to carry out hot glove operations
Assessment criteria
The learner can: 3.1 confirm the system is safe to be operated on in accordance with organisational procedures 3.2 implement the work plan in line with organisational procedures to meet safe control system requirements 3.3 carry out hot glove operations in accordance with organisational procedures 3.4 confirm the finished work meets organisational requirements and quality standards 3.5 record the results of the work implemented in accordance with organisational procedures 3.6 resolve problems within the limits of own job role responsibility 3.7 report problems outside the limits of own responsibility to designated personnel.

Learning outcome
The learner will: 4. be able to leave the work area in a safe condition according to required regulation and legislation
Assessment criteria
The learner can: 4.1 store tools and equipment on completion of work activity 4.2 check the safe condition of the work area.

Unit 348 Hot glove operations

Supporting information

Evidence requirements

You must provide your assessor with evidence for all the learning outcomes and assessment criteria. The evidence must be provided in the following ways taking into account any of the special considerations below.

You need to provide evidence to show that you have carried out company approved hot glove operations on **two** separate occasions.

Guidance

2.4. a site specific risk assessment should take into consideration:

- Apparatus identification
- Apparatus condition
- Environmental conditions – visibility, rain, wind, lightning

3.1 points to be considered

- points of isolation
- earthing arrangements
- drain
- vent
- purge

Unit 349

Install overhead line apparatus on steel tower structures

UAN:	UF65 04
Level:	6
Credit value:	13
GLH:	102
Assessment requirements specified by a sector or regulatory body:	This unit is endorsed by EU Skills
Aim:	This unit is about the installation of overhead line apparatus on steel tower structures in an electrical power engineering environment. It involves following set operational procedures and processes to ensure the network is safe to work on and the identification and control of hazards in the work area. It also involves using a range of tools and equipment to carry out the installation and complying with technical design specifications to ensure the completed work meets with organisational and technical requirements.

Learning outcome
The learner will: 1. understand organisational procedures and legislative requirements for work on overhead line steel tower structures
Assessment criteria
The learner can: 1.1 describe the main principles of health and safety legislation and regulations applicable to work at height on overhead line networks 1.2 describe roles and responsibilities of employees and employers in relation to organisational procedures and legislative requirements 1.3 explain the limitations of own job responsibility and reporting procedures for any work related problems 1.4 explain the hazards to be considered when planning the installation and configuration of apparatus on steel tower structures 1.5 describe the organisational procedures for accidents, incidents and emergencies to include: a) fire b) injury to self and others c) threat of terrorism

<p>d) hazardous occurrences and near misses</p> <p>1.6 explain the organisational procedures that need to be complied with when working on overhead line steel tower structures</p> <p>1.7 explain the processes and procedures that need to be complied with when receiving a safety document.</p>

Learning outcome
The learner will:
2. be able to plan and prepare to install and configure apparatus on steel tower structures
Assessment criteria
The learner can:
2.1 identify the work location using organisational documentation and work instructions
2.2 apply organisational work documentation to identify the work activity
2.3 plan the activities required for the installation of overhead line plant and equipment
2.4 carry out a site specific risk assessment in accordance with health and safety regulations
2.5 select and wear Personal Protective Equipment (PPE) required for the job role
2.6 identify the system to be worked on, including its points of isolation in accordance with organisational procedures
2.7 identify the apparatus to be installed/configured in line with organisational procedures
2.8 select the appropriate tools and equipment required to install the overhead line plant and equipment
2.9 inform those who will be directly and indirectly affected by the intended work plan.

Learning outcome
The learner will:
3. be able to install and configure apparatus on steel tower structures
Assessment criteria
The learner can:
3.1 confirm the system is safe to work on in accordance with organisational procedures
3.2 implement the work plan in line with organisational procedures to meet safe control system requirements
3.3 carry out the work in line with work plan and organisational procedures
3.4 confirm the finished work meets organisational requirements and quality standards

- | | |
|-----|---|
| 3.5 | record the results of the work implemented in accordance with organisational procedures |
| 3.6 | resolve problems within the limits of own job role responsibility |
| 3.7 | report problems outside the limits of own responsibility to designated personnel. |

Learning outcome

The learner will:

- | |
|--|
| 4. be able to leave the work area in a safe condition according to required regulation and legislation |
|--|

Assessment criteria

The learner can:

- | |
|--|
| 4.1 store tools and equipment on completion of work activity |
| 4.2 dispose of waste materials and hazardous substances |
| 4.3 check the safe condition of the work area. |

Unit 349 Install overhead line apparatus on steel tower structures

Supporting information

Evidence requirements

You must provide your assessor with evidence for all the learning outcomes and assessment criteria. The evidence must be provided in the following ways taking into account any of the special considerations below.

You need to provide evidence to show that you have carried out installation and configuration work on steel tower structures on **two** different occasions.

And carried out the installation and configuration of **two** different types of the apparatus listed –

- a. Cable Terminations
- b. Surge Arrestors
- c. Telecommunications/Fibre Optics

Guidance

2.4 a site specific risk assessment should take into consideration:

- Environmental conditions – rain, wind, fog, lightning
- Person in attendance when working at height
- Control/removal of hazards
- Circuit Identification - pennants/flags
- Rescue equipment available

3.1 points to be considered

- points of isolation
- earthing arrangements
- drain
- vent
- purge

Unit 350

Fault repair of overhead line apparatus on steel tower structures

UAN:	UF66 04
Level:	6
Credit value:	13
GLH:	102
Relationship to NOS:	This unit is linked to the
Assessment requirements specified by a sector or regulatory body:	This unit is endorsed by EU Skills
Aim:	This unit is about fault repair of overhead line and apparatus on steel tower structures in an electrical power engineering environment. It involves following routine fault rectification and repair procedures. It also involve inspecting the finished repair and rectification work to make sure it's operates in a manner that meets operating specifications and quality standards and criteria set by the organisation.

Learning outcome
The learner will: 1. understand organisational procedures and legislative requirements for fault repair on overhead line steel tower structures
Assessment criteria
The learner can: 1.1 describe the main principles of health and safety legislation and regulations applicable to work at height on overhead line power equipment 1.2 describe roles and responsibilities of employees and employers in relation to organisational procedures and legislative requirements 1.3 explain the limitations of own job responsibility and reporting procedures for any work related problems 1.4 explain the hazards to be considered when carrying out fault repair work on overhead line steel tower structures 1.5 describe the organisational procedures for accidents, incidents and emergencies to include: a) fire b) injury to self and others c) threat of terrorism

<p>d) hazardous occurrences and near misses</p> <p>1.6 explain the organisational procedures that need to be complied with when carrying out fault repair work on overhead line steel tower structures</p> <p>1.7 explain the processes and procedures that need to be complied with when receiving a safety document.</p>
--

<p>Learning outcome</p> <p>The learner will:</p> <p>2. be able to plan and prepare to carry out fault repair on overhead line steel tower structures</p>
<p>Assessment criteria</p> <p>The learner can:</p> <p>2.1 identify the work location using organisational documentation and work instructions</p> <p>2.2 apply organisational work documentation to identify the work activity</p> <p>2.3 plan the activities required to carry out the repair work</p> <p>2.4 carry out a site specific risk assessment in accordance with health and safety regulations</p> <p>2.5 select and wear Personal Protective Equipment (PPE) required for the job role</p> <p>2.6 identify the power equipment to be installed in line with organisational procedures</p> <p>2.7 select the appropriate tools and equipment required to install the overhead line plant and equipment</p> <p>2.8 inform those who will be directly and indirectly affected by the intended work plan.</p>

<p>Learning outcome</p> <p>The learner will:</p> <p>3. be able to carry out fault repair on overhead line steel tower structures</p>
<p>Assessment criteria</p> <p>The learner can:</p> <p>3.1 confirm the system is safe to work on in accordance with organisational procedures including</p> <p>3.2 implement the work plan in line with organisational procedures to meet safe control system requirements</p> <p>3.3 carry out fault repair work in line with work plan and organisational procedures</p> <p>3.4 confirm the finished work meets organisational requirements and quality standards</p> <p>3.5 record the results of the work implemented in accordance with organisational procedures</p> <p>3.6 resolve problems within the limits of own job role responsibility</p> <p>3.7 report problems outside the limits of own responsibility to designated personnel.</p>

Learning outcome
The learner will: 4. be able to leave the work area in a safe condition according to required regulation and legislation
Assessment criteria
The learner can: 4.1 store tools and equipment on completion of work activity 4.2 dispose of waste materials 4.3 check the safe condition of the work area.

Unit 350 **Fault repair of overhead line apparatus on steel tower structures**

Supporting information

Evidence requirements

You must provide your assessor with evidence for all the learning outcomes and assessment criteria. The evidence must be provided in the following ways taking into account any of the special considerations below.

You need to provide evidence to show that you have carried out fault repair on steel tower structures on **two** different occasions.

And carried out the installation and configuration of **two** different types of the apparatus listed –

- a. Conductors
- b. Apparatus
- c. Fittings
- d. Structure
- e. Anti-climbing devices

Guidance

2.4 a site specific risk assessment should take into consideration:

- Environmental conditions – rain, wind, fog, lightning
- Person in attendance when working at height
- Control/removal of hazards
- Circuit Identification - pennants/flags
- Rescue equipment available

3.1 points to be considered

- points of isolation
- earthing arrangements
- drain
- vent
- purge

Unit 351

Earthing of overhead line transmission conductors

UAN:	UF67 04
Level:	6
Credit value:	15
GLH:	150
Assessment requirements specified by a sector or regulatory body:	This unit is endorsed by EU Skills
Aim:	This unit is about earthing of overhead line transmission conductors in an electrical power engineering environment. It involves using tools and equipment to make sure the earthing of plant and apparatus is conducted safely and in accordance with health and safety rules and regulations.

Learning outcome
The learner will: 1. understand organisational procedures and legislative requirements for the earthing of overhead line transmission conductors
Assessment criteria
The learner can: 1.1 describe the main principles of health and safety legislation and regulations applicable to work at height on overhead lines 1.2 describe roles and responsibilities of employees and employers in relation to organisational procedures and legislative requirements 1.3 explain the limitations of own job responsibility and reporting procedures for any work related problems 1.4 explain the hazards to be considered when planning the earthing of overhead line transmission conductors 1.5 describe the organisational procedures for accidents, incidents and emergencies to include: a) fire b) injury to self and others c) threat of terrorism d) hazardous occurrences and near misses 1.6 explain the organisational procedures that need to be complied with when earthing overhead line transmission conductors 1.7 explain the processes and procedures that need to be complied with when receiving a safety document.

Learning outcome
The learner will: 2. be able to plan and prepare to carry out the earthing of overhead line transmission conductors
Assessment criteria
The learner can: 2.1 identify the work location using organisational documentation and work instructions 2.2 apply organisational work documentation to identify the work activity 2.3 plan the activities required for the earthing of overhead line transmission conductors 2.4 carry out a site specific risk assessment in accordance with health and safety regulations 2.5 select and wear Personal Protective Equipment (PPE) required for the job role 2.6 inspect the conductors to be earthed in accordance with organisational procedures 2.7 select the appropriate tools and equipment required to carry out the earthing of overhead line transmission conductors 2.8 inform those who will be directly and indirectly affected by the intended work plan.

Learning outcome
The learner will: 3. be able to carry out the earthing of overhead line transmission conductors
Assessment criteria
The learner can: 3.1 confirm the conductors are safe to earth in accordance with organisational procedures 3.2 implement the work plan in line with organisational procedures to meet safe control system requirements 3.3 carry out the earthing of overhead line transmission conductors in accordance with organisational procedures 3.4 confirm the finished work meets organisational requirements and quality standards 3.5 record the results of the work implemented in accordance with organisational procedures 3.6 resolve problems within the limits of own job role responsibility 3.7 report problems outside the limits of own responsibility to designated personnel.

Learning outcome
The learner will: 4. be able to leave the work area in a safe condition according to required regulation and legislation
Assessment criteria
The learner can: 4.1 store tools and equipment on completion of work activity 4.2 check the safe condition of the work area.

Unit 351 Earthing of overhead line transmission conductors

Supporting information

Evidence requirements

You must provide your assessor with evidence for all the learning outcomes and assessment criteria. The evidence must be provided in the following ways taking into account any of the special considerations below.

You need to provide evidence to show that you have carried out the earthing of overhead line transmission conductors on at least **two** different occasions

To include **one** Dress earthing scheme and **one** through current earthing scheme

Guidance

2.4 a site specific risk assessment should take into consideration:

- Electrical clearances
- Circuit identification - pennants/flags
- Condition of the conductors
- Environmental conditions – rain, wind, fog, lightning
- Person in attendance when working at height
- Control/removal of hazards

3.1 points to be considered

- points of isolation
- earthing arrangements
- drain
- vent
- purge

Unit 352

Erection of steel tower structures

UAN:	UF68 04
Level:	6
Credit value:	10
GLH:	96
Assessment requirements specified by a sector or regulatory body:	This unit is endorsed by EU Skills
Aim:	<p>This unit is about the erection of steel tower structures in an electrical power engineering environment.</p> <p>It involves completing installation activities following processes and procedures to make sure that the finished work meets the quality assurance and operating specifications set by the organisation.</p>

Learning outcome
The learner will: 1. understand organisational procedures and legislative requirements for the erection of steel tower structures
Assessment criteria
The learner can: 1.1 describe the main principles of health and safety legislation and regulations applicable to work at height on overhead lines 1.2 describe roles and responsibilities of employees and employers in relation to organisational procedures and legislative requirements 1.3 explain the limitations of own job responsibility and reporting procedures for any work related problems 1.4 explain the hazards to be considered when planning the erection of steel tower structures 1.5 describe the organisational procedures for accidents, incidents and emergencies to include: a) fire b) injury to self and others c) threat of terrorism d) hazardous occurrences and near misses 1.6 explain the organisational procedures that need to be complied with when carrying out the erection of steel tower structures 1.7 explain the processes and procedures that need to be complied with when receiving a safety document.

Learning outcome
The learner will: 2. be able to plan and prepare to carry out the erection of steel tower structures
Assessment criteria
The learner can: 2.1 identify the work location using organisational documentation and work instructions 2.2 apply organisational work documentation to identify the work activity 2.3 plan the activities required for the erection of steel tower structures 2.4 carry out a site specific risk assessment in accordance with health and safety regulations 2.5 select and wear Personal Protective Equipment (PPE) required for the job role 2.6 inspect the steelwork to be erected in accordance with organisational procedures and manufacturers specifications 2.7 select the appropriate tools and equipment required to carry out the erection of a steel tower structure 2.8 inform those who will be directly and indirectly affected by the intended work plan.

Learning outcome
The learner will: 3. be able to carry out the erection of steel tower structures
Assessment criteria
The learner can: 3.1 implement control measures in line with organisational procedures to meet safe systems of work 3.2 carry out the erection of tower steelwork in accordance with organisational procedures 3.3 monitor control measures when lifting and moving tower steelwork to ensure risks are minimised 3.4 check the steelwork is located and secured in accordance with the work plan and manufacturers specifications 3.5 resolve problems within the limits of own job role responsibility 3.6 report problems outside the limits of own responsibility to designated personnel.

Learning outcome
The learner will: 4. be able to leave the work area in a safe condition according to required regulation and legislation
Assessment criteria
The learner can: 4.1 store tools and equipment on completion of work activity 4.2 dispose of waste materials and hazardous substances 4.3 check the safe condition of the work area.

Unit 352 Erection of steel tower structures

Supporting information

Evidence requirements

You must provide your assessor with evidence for all the learning outcomes and assessment criteria. The evidence must be provided in the following ways taking into account any of the special considerations below.

You need to provide evidence to show that you have carried out the erection of steel tower structures on at least **one** occasion:

Evidence to include **one** lifting plan

Guidance

Evidence could include the use of Cranes, Telehandlers, JIB Poles and Derricks.

2.4 a site specific risk assessment should take into consideration:

- steelwork – size, weight, stability, lifting points
- lifting route to be taken
- traffic, pedestrians
- barriers, fencing
- clearances, obstructions
- environmental conditions – rain, wind, lightning

This unit should be taken in association with Unit 304 Coordinate the Mechanical Movement of Power Plant and Apparatus

UAN:	UF69 04
Level:	6
Credit value:	16
GLH:	96
Assessment requirements specified by a sector or regulatory body:	This unit is endorsed by EU Skills
Aim:	This unit is about carrying out maintenance operations on power transformers in an electrical power engineering environment. It involves following set processes and procedures to ensure the system is safe to work on and the identification and control of hazards in the work area. It also involves the planning and organisation of resources to carry out maintenance activities and testing operations to ensure the completed maintenance work meets with technical specifications and organisational requirements.

Learning outcome
The learner will: <ol style="list-style-type: none"> 1. understand organisational procedures and legislative requirements for maintaining power transformers
Assessment criteria
The learner can: <ol style="list-style-type: none"> 1.1 describe the main principles of health and safety legislation and regulations relating to work on power networks 1.2 describe roles and responsibilities of employees and employers in relation to organisational procedures and legislative requirements 1.3 explain the limitations of own job responsibility and reporting procedures for any work related problems 1.4 explain the hazards to be considered when planning to maintain power transformers 1.5 explain what materials and substances are hazardous to health in relation to job role 1.6 describe the organisational procedures for accidents, incidents and emergencies to include: <ol style="list-style-type: none"> a) fire b) injury to self and others c) threat of terrorism

<p>d) hazardous occurrences and near misses</p> <p>1.7 explain the organisational procedures that need to be complied with when maintaining power transformers</p> <p>1.8 explain the processes and procedures that need to be complied with when receiving a safety document.</p>
--

Learning outcome
The learner will:
2. be able to plan and prepare to maintain power transformers
Assessment criteria
The learner can:
2.1 identify the work location using organisational documentation and work instructions
2.2 apply organisational work documentation to identify the work activity
2.3 plan the activities required for the maintenance of power transformers
2.4 carry out a site specific risk assessment in accordance with health and safety regulations
2.5 select and wear personal protective equipment (PPE) required for the job role
2.6 identify and carry out a pre work inspection of the power transformer to be maintained in line with organisational procedures
2.7 select suitable tools and equipment required to maintain the power transformer
2.8 inform those who will be directly and indirectly affected by the intended work plan.

Learning outcome
The learner will:
3. be able to maintain power transformers
Assessment criteria
The learner can:
3.1 confirm the system is safe to work on in accordance with organisational procedures
3.2 implement control measures in line with organisational procedures to meet safe control system requirements
3.3 maintain the power transformer in line with work plan and organisational procedures
3.4 monitor control measures to ensure risks are minimised
3.5 confirm the finished work meets organisational requirements and quality standards
3.6 record the results of the work implemented in accordance with organisational procedures
3.7 resolve problems within the limits of own job role responsibility
3.8 report problems outside the limits of own responsibility to designated personnel.

Learning outcome
The learner will:

4. be able to leave the work area in a safe condition according to required regulation and legislation
Assessment criteria
The learner can: 4.1 store tools and test equipment on completion of work activity 4.2 dispose of waste materials and hazardous substances 4.3 check the safe condition of the work area.

Unit 353 Maintain power transformers

Supporting information

Evidence requirements

You must provide your assessor with evidence for all the learning outcomes and assessment criteria. The evidence must be provided in the following ways taking into account any of the special considerations below.

You need to provide evidence to show that you have carried out the maintenance of power transformers on **two** separate occasions which includes the coverage of **all** the following items:

- Main tank (including protection devices)
- Selector
- Diverter

Guidance

3.1 points to be considered

- points of isolation
- earthing arrangements
- drain
- vent
- purge

3.2 Control measures may include

- receipt of a safety document
- points of isolation
- earthing arrangements
- drain
- vent
- purge

Unit 354

Maintain supervisory control and data acquisition (SCADA) systems

UAN:	UF70 04
Level:	6
Credit value:	16
GLH:	102
Assessment requirements specified by a sector or regulatory body:	This unit is endorsed by EU Skills
Aim:	This unit is about maintaining Supervisory Control and Data Acquisition (SCADA) systems in an electrical power engineering environment. It involves completing maintenance activities in a rigorous and methodical manner and the following of processes and procedures to make sure that the finished work meets the quality assurance and operating specifications set by the organisation.

Learning outcome
The learner will: 1. understand organisational procedures and legislative requirements for maintaining Supervisory Control and Data Acquisition (SCADA) systems
Assessment criteria
The learner can: 1.1 describe the main principles of health and safety legislation and regulations relating to work on power networks 1.2 describe roles and responsibilities of employees and employers in relation to organisational procedures and legislative requirements 1.3 explain the limitations of own job responsibility and reporting procedures for any work related problems 1.4 explain the hazards of maintaining SCADA systems and the control measures used to control them 1.5 describe the organisational procedures for accidents, incidents and emergencies to include: a) fire b) injury to self and others c) threat of terrorism d) hazardous occurrences and near misses 1.6 explain the organisational procedures that need to be complied

<p>with when maintaining SCADA systems</p> <p>1.7 explain the processes and procedures that need to be complied with when receiving a safety document.</p>
--

Learning outcome
<p>The learner will:</p> <p>2. be able to plan and prepare to carry out the maintenance of SCADA systems</p>
Assessment criteria
<p>The learner can:</p> <p>2.1 identify the work location using company documentation and work instructions</p> <p>2.2 apply organisational work documentation to identify the work activity</p> <p>2.3 plan the activities required for maintaining SCADA systems</p> <p>2.4 carry out a site specific risk assessment in accordance with health and safety regulations</p> <p>2.5 select and wear personal protective equipment (PPE) required for the job role</p> <p>2.6 select and carry out pre use checks on tools and equipment required for maintaining SCADA systems</p> <p>2.7 carry out pre work inspection of the equipment to be worked on in accordance with organisational procedures</p> <p>2.8 inform those who will be directly and indirectly affected by the intended work plan.</p>

Learning outcome
<p>The learner will:</p> <p>3. be able to maintain SCADA systems</p>
Assessment criteria
<p>The learner can:</p> <p>3.1 implement control measures in line with organisational procedures to meet safe control system requirements</p> <p>3.2 maintain SCADA systems in accordance with organisational procedures</p> <p>3.3 monitor control measures to ensure risks are minimised</p> <p>3.4 confirm the finished operation meets organisational requirements and quality standards</p> <p>3.5 record the results of the operation in accordance with organisational procedures</p> <p>3.6 resolve problems within the limits of own job responsibility</p> <p>3.7 report problems outside the limits of own responsibility to designated personnel.</p>

Learning outcome
<p>The learner will:</p>

4. be able to leave the work area in a safe condition according to required regulation and legislation
Assessment criteria
The learner can: 4.1 store tools and equipment on completion of work activity 4.2 dispose of waste materials 4.3 check the safe condition of the work area.

Unit 354 Maintain supervisory control and data acquisition (SCADA) systems

Supporting information

Evidence requirements

You must provide your assessor with evidence for all the learning outcomes and assessment criteria. The evidence must be provided in the following ways taking into account any of the special considerations below.

You will need to provide evidence to show that that you have carried out the maintenance of a SCADA system and associated RTU equipment on **three** occasions in line with the work plan, risk assessment and Company procedures

Guidance

2.6 Select and check - to include inspection of tools and equipment

3.1 Control measures may include – receipt of a safety document, identification of circuit, signs/barriers, control/removal of hazards, person in attendance, condition of the apparatus to be worked on, environmental conditions – rain, wind, lightning

Unit 355

Electrical testing of power equipment

UAN:	UF24 04
Level:	6
Credit value:	15
GLH:	150
Assessment requirements specified by a sector or regulatory body:	This unit is endorsed by EU Skills
Aim:	This unit is about carrying out electrical testing procedures on a range of power equipment in an electrical power engineering environment. It involves following stringent processes and procedures to ensure the testing operations are carried out safely. It also involves the methodical planning of tasks and the use of a range of test equipment to support the analysis and recording of test results in line with organisational requirements.

Learning outcome
The learner will: 1. understand organisational procedures and legislative requirements for electrical testing of power equipment
Assessment criteria
The learner can: 1.1 describe the main principles of health and safety legislation and regulations applicable to work on power networks 1.2 describe roles and responsibilities of employees and employers in relation to organisational procedures and legislative requirements 1.3 explain the limitations of own job responsibility and reporting procedures for any work related problems 1.4 explain the hazards to be considered when planning the electrical testing of power equipment 1.5 describe the organisational procedures for accidents, incidents and emergencies to include: a) fire b) injury to self and others c) threat of terrorism d) hazardous occurrences and near misses 1.6 explain the organisational procedures that need to be complied with for electrical testing of power equipment

1.7 explain the processes and procedures that need to be complied with when receiving a safety document.

Learning outcome

The learner will:

2. be able to plan and prepare for electrical testing of power equipment

Assessment criteria

The learner can:

2.1 identify the work location using organisational documentation and work instructions

2.2 apply organisational work documentation to identify the work activity

2.3 plan the activities required for electrical testing of power equipment

2.4 carry out a site specific risk assessment in accordance with health and safety regulations

2.5 select and wear Personal Protective Equipment (PPE) required for the job role

2.6 inspect the power equipment to be tested in line with organisational procedures

2.7 select the appropriate test and equipment for electrical testing

2.8 inform those who will be directly and indirectly affected by the intended work plan.

Learning outcome

The learner will:

3. be able to carry out electrical testing procedures on power equipment

Assessment criteria

The learner can:

3.1 implement control measures to ensure work area is safe for testing procedures

3.2 carry out electrical testing in line with work plan and organisational procedures

3.3 interpret and record the results of tests in line with organisational procedures

3.4 resolve problems within the limits of own job role responsibility

3.5 report problems outside the limits of own responsibility to designated personnel.

Learning outcome

The learner will:

4. be able to leave the work area in a safe condition according to required regulation and legislation

Assessment criteria

The learner can:

- 4.1 store tools and test equipment on completion of work activity
- 4.2 dispose of waste materials and hazardous substances
- 4.3 check the safe condition of the work area.

Unit 355 Electrical testing of power equipment

Supporting information

Evidence requirements

You must provide your assessor with evidence for all the learning outcomes and assessment criteria. The evidence must be provided in the following ways taking into account any of the special considerations below.

You will need to provide evidence to show that on at least **two** different occasions you carried out **two** of the following:

- voltage
- polarity
- insulation resistance
- earth loop impedance
- three-phase testing
- phase rotation
- continuity
- joint resistance
- timing
- oil dielectric
- Buchholz test
- winding temperature indicator

Guidance

3.1 factors to be considered

- signs and barriers
- shrouding
- control/removal of hazards
- person in attendance

Unit 356

Install substation plant and apparatus

UAN:	UF39 04
Level:	6
Credit value:	17
GLH:	140
Assessment requirements specified by a sector or regulatory body:	This unit is endorsed by EU Skills
Aim:	This unit is about installing substation plant and apparatus in an electrical power engineering environment. It involves the planning and organisation of resources and following set operational procedures to ensure the system is safe to work on before undertaking installation activities. It also involves using and complying with technical design specifications to ensure the completed installation meets with technical and organisational requirements.

Learning outcome
The learner will: 1. understand the statutory regulations and procedures required for work on substation plant and apparatus
Assessment criteria
The learner can: 1.1 describe the main principles of health and safety legislation and regulations relating to work on substation plant and apparatus 1.2 describe roles and responsibilities of employees and employers in relation to organisational procedures and legislative requirements 1.3 explain the limitations of own job responsibility and reporting procedures for any work related problems 1.4 explain the hazards to be considered when planning to install substation plant and apparatus 1.5 explain what materials and substances are hazardous to health in relation to job role 1.6 describe the organisational procedures for accidents, incidents and emergencies to include: a) fire b) injury to self and others c) threat of terrorism d) hazardous occurrences and near misses

- | |
|---|
| <p>1.7 explain the organisational procedures that need to be complied with when installing plant and substation apparatus</p> <p>1.8 explain the processes and procedures that need to be complied with when receiving a safety document.</p> |
|---|

Learning outcome
The learner will: 2. be able to plan and prepare for installing substation plant and apparatus
Assessment criteria
The learner can: 2.1 identify the work location using organisational documentation and work instructions 2.2 apply organisational work documentation to identify the work activity 2.3 plan the activities required for installing substation plant and apparatus 2.4 carry out a site specific risk assessment in accordance with health and safety regulations 2.5 select and wear personal protective equipment (PPE) required for the job role 2.6 identify and carry out a pre work inspection of the apparatus to be installed in line with organisational procedures 2.7 select suitable tools and equipment required to maintain the substation apparatus 2.8 inform those who will be directly and indirectly affected by the intended work plan.

Learning outcome
The learner will: 3. be able to install substation plant and apparatus
Assessment criteria
The learner can: 3.1 confirm the system is safe to work on in accordance with organisational procedures 3.2 implement control measures in line with organisational procedures to meet safe control system requirements 3.3 install substation apparatus in line with work plan and organisational procedures 3.4 monitor control measures to ensure risks are minimised 3.5 confirm the finished work meets organisational requirements and quality standards 3.6 record the results of the work implemented in accordance with organisational procedures 3.7 resolve problems within the limits of own job role responsibility 3.8 report problems outside the limits of own responsibility to designated personnel.

Learning outcome
The learner will: 4. Be able to leave the work area in a safe condition according to required regulation and legislation
Assessment criteria
The learner can: 4.1 store tools and test equipment on completion of work activity 4.2 dispose of waste materials and hazardous substances 4.3 check the safe condition of the work area.

Unit 356 Install substation plant and apparatus

Supporting information

Evidence requirements

You must provide your assessor with evidence for all the learning outcomes and assessment criteria. The evidence must be provided in the following ways taking into account any of the special considerations below.

You will need to provide evidence to show that on at least **three** different occasions you carried out **three** of the following:

- transformer
- switchgear
- package sub station
- LV frames
- panel wiring
- battery and charger
- cable installations
- LV apparatus
- automation equipment
- switchgear housing
- Busbar installations
- compressed air equipment

Guidance

3.2 Control measures may include

- receipt of a safety document
- points of isolation
- earthing arrangements
- drain
- vent
- purge

2.7 Select tools – to include an inspection of condition e.g. insulation



Appendix 1 Sources of general information

The following documents contain essential information for centres delivering City & Guilds qualifications. They should be referred to in conjunction with this handbook. To download the documents and to find other useful documents, go to the **Centres and Training Providers homepage** on www.cityandguilds.com.

Centre Manual - Supporting Customer Excellence contains detailed information about the processes which must be followed and requirements which must be met for a centre to achieve 'approved centre' status, or to offer a particular qualification, as well as updates and good practice exemplars for City & Guilds assessment and policy issues. Specifically, the document includes sections on:

- The centre and qualification approval process
- Assessment, internal quality assurance and examination roles at the centre
- Registration and certification of candidates
- Non-compliance
- Complaints and appeals
- Equal opportunities
- Data protection
- Management systems
- Maintaining records
- Assessment
- Internal quality assurance
- External quality assurance.

Our Quality Assurance Requirements encompasses all of the relevant requirements of key regulatory documents such as:

- Regulatory Arrangements for the Qualifications and Credit Framework (2008)
- SQA Awarding Body Criteria (2007)
- NVQ Code of Practice (2006)

and sets out the criteria that centres should adhere to pre and post centre and qualification approval.

Access to Assessment & Qualifications provides full details of the arrangements that may be made to facilitate access to assessments and qualifications for candidates who are eligible for adjustments in assessment.

The **centre homepage** section of the City & Guilds website also contains useful information on such things as:

- **Walled Garden:** how to register and certificate candidates on line
- **Qualifications and Credit Framework (QCF):** general guidance about the QCF and how qualifications will change, as well as information on the IT systems needed and FAQs
- **Events:** dates and information on the latest Centre events
- **Online assessment:** how to register for e-assessments.

Centre Guide – Delivering International Qualifications contains detailed information about the processes which must be followed and requirements which must be met for a centre to achieve ‘approved centre’ status, or to offer a particular qualification. Specifically, the document includes sections on:

- The centre and qualification approval process and forms
- Assessment, verification and examination roles at the centre
- Registration and certification of candidates
- Non-compliance
- Complaints and appeals
- Equal opportunities
- Data protection
- Frequently asked questions.

City & Guilds
Believe you can



www.cityandguilds.com

Useful contacts

UK learners E: learnersupport@cityandguilds.com

General qualification information

International learners

General qualification information

E: intcg@cityandguilds.com

Centres

Exam entries, Certificates, Registrations/enrolment, Invoices, Missing or late exam materials, Nominal roll reports, Results

E: centresupport@cityandguilds.com

Single subject qualifications

Exam entries, Results, Certification, Missing or late exam materials, Incorrect exam papers, Forms request (BB, results entry), Exam date and time change

E: singlesubjects@cityandguilds.com

International awards

Results, Entries, Enrolments, Invoices, Missing or late exam materials, Nominal roll reports

E: intops@cityandguilds.com

Walled Garden

Re-issue of password or username, Technical problems, Entries, Results, e-assessment, Navigation, User/menu option, Problems

E: walledgarden@cityandguilds.com

Employer

Employer solutions, Mapping, Accreditation, Development Skills, Consultancy

E: business@cityandguilds.com

Publications

Logbooks, Centre documents, Forms, Free literature

Every effort has been made to ensure that the information contained in this publication is true and correct at the time of going to press. However, City & Guilds' products and services are subject to continuous development and improvement and the right is reserved to change products and services from time to time. City & Guilds cannot accept liability for loss or damage arising from the use of information in this publication.

If you have a complaint, or any suggestions for improvement about any of the services that we provide, email: feedbackandcomplaints@cityandguilds.com

About City & Guilds

As the UK's leading vocational education organisation, City & Guilds is leading the talent revolution by inspiring people to unlock their potential and develop their skills. We offer over 500 qualifications across 28 industries through 8500 centres worldwide and award around two million certificates every year. City & Guilds is recognised and respected by employers across the world as a sign of quality and exceptional training.

City & Guilds Group

The City & Guilds Group is a leader in global skills development. Our purpose is to help people and organisations to develop their skills for personal and economic growth. Made up of City & Guilds, City & Guilds Kineo, The Oxford Group and ILM, we work with education providers, businesses and governments in over 100 countries.

Copyright

The content of this document is, unless otherwise indicated, © The City and Guilds of London Institute and may not be copied, reproduced or distributed without prior written consent. However, approved City & Guilds centres and candidates studying for City & Guilds qualifications may photocopy this document free of charge and/or include a PDF version of it on centre intranets on the following conditions:

- centre staff may copy the material only for the purpose of teaching candidates working towards a City & Guilds qualification, or for internal administration purposes
- candidates may copy the material only for their own use when working towards a City & Guilds qualification

The *Standard Copying Conditions* (see the City & Guilds website) also apply.

Please note: National Occupational Standards are not © The City and Guilds of London Institute. Please check the conditions upon which they may be copied with the relevant Sector Skills Council. Published by City & Guilds, a registered charity established to promote education and training

City & Guilds
1 Giltspur Street
London EC1A 9DD
www.cityandguilds.com

Docushare Ref [via Publishing]