SVQ in Process Engineering Maintenance (Electrical) at SCQF Level 7

Qualification Reference Number

GR44 47

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PERSONAL COMPETENCE SUMMARY

Name	Company/Centre
Job Title	GQA Registration Number

Unit Number	Mandatory Units	SCQF Level	SCQF Credit	Date
P20	Carry Out Planned Maintenance Procedures on Electrical Plant and Equipment	7	8	
P21	Deal with Variations and Defects in Electrical Plant and Equipment	7	6	
P22	Diagnose and Determine the Causes of Faults in Electrical Plant and Equipment	7	8	
08	Handover Process Engineering Plant and Equipment	6	5	
09	Reinstate the Work Area after Completing the Maintenance of Process Engineering Plant and Equipment	6	5	
10	Minimise Risks to Life, Property and the Environment	6	7	
11	Work Safely, Minimise Risk and Comply with Emergency Procedures	6	6	
12	Contribute to Effective Working Relationships	6	2	
Group 1- Candidates must take a minimum of 2 units				
Group 2 - Candidates must take a minimum of 2 units				

RELIABLE EVIDENCE: The forms of evidence available include (✓ as appropriate)

Observation in the workplace		Simulation(s)	
Oral assessment of knowledge		Work records	
Written work/assignment		Photographs/Video	
Witness statement(s)		Audio	
Testimonial(s)		Products	
Other (please state)			

Candidate ID Photo

	Name and Signature	Date
Candidate		
Lead Assessor		
Internal Verifier		
EQA		

INTRODUCTION TO THE QUALIFICATION

Who is this qualification for?

This qualification is aimed at those who undertake work in the Process Engineering Maintenance working environment, specifically Electrical maintenance, and has been developed from the relevant National Occupational Standards (NOS).

It is not expected that all working in these sectors will all carry out the same activities, so the qualification is structured to ensure that there is a high degree of flexibility in the choice of units, giving the opportunity to complete this qualification for a wide range of occupational roles and activities including both production and installation activities.

The standard covers the most important aspects of the job. This qualification is at SCQF level 7, completion of this qualification requires candidates to show they have the skills and knowledge to work unsupervised in completing their work and should also have the ability and experience to deal with problems that can occur.

What is required from candidates?

Candidates should achieve all 8 mandatory units listed below, plus a minimum of 2 of the optional units in Optional Group 1 and a minimum of 2 units from Optional Group 2.

Guidance on the evidence that will be acceptable is contained in the introduction to each unit.

Unit Number	Mandatory Units	Level	Credit Value
P20	Carry Out Planned Maintenance Procedures on Electrical Plant and Equipment	7	8
P21	Deal with Variations and Defects in Electrical Plant and Equipment	7	6
P22	Diagnose and Determine the Causes of Faults in Electrical Plant and Equipment	7	8
08	Handover Process Engineering Plant and Equipment	6	5
09	Reinstate the Work Area after Completing the Maintenance of Process Engineering Plant and Equipment	6	5
10	Minimise Risks to Life, Property and the Environment	6	7
11	Work Safely, Minimise Risk and Comply with Emergency Procedures	6	6
12	Contribute to Effective Working Relationships	6	2
Group 1- Candidates must take a minimum of 2 units			
13	Prepare Work Areas for Engineering Activities	6	7
23	Prepare Equipment in Support of Electrical Engineering Activities	6	5
24	Prepare Materials for the Maintenance of Electrical Plant and Equipment	6	4
25	Adjust Electrical Plant and Equipment to Meet Operational Requirements	7	6
26	Remove Components from Electrical Plant and Equipment	7	6
27	Replace Components in Electrical Plant and Equipment	7	6
28	Determine the Feasibility of Repair of Components from Electrical Plant and Equipment	7	6
Group 2 - Candidates must take a minimum of 2 units			
P30	Read and Extract Information from Electrical Engineering Drawings and Specifications	7	6
P31	Identify and Suggest Improvements to Working Practices and Procedures on Electrical Plant and Equipment	7	6
P32	Establish that an Electrical Engineering Maintenance Process has been Completed to Specification	7	6
P33	Test the Performance and Condition of Electrical Plant and Equipment	7	6
P34	Monitor the Performance and Condition of Electrical Plant and Equipment	7	7
P35	Assess the Performance and Condition of Electrical Plant and Equipment	7	7

P36	Inspect Electrical Plant and Equipment	7	6
P29	Interpret Detailed Electrical Information from Technical Sources	7	4

Assessment Guidance

Evidence should show that the candidate can cover the scope of performance outlined for each relevant unit consistently over an appropriate period of time.

Types of evidence:

Evidence of performance and knowledge is required. Evidence of performance should be demonstrated by activities and outcomes, and should be generated in the workplace only, unless indicated under potential sources of evidence (see below). Evidence of knowledge can be demonstrated through performance or by responding to questions.

Potential sources of evidence:

The main sources of evidence for each unit will be observation of performance and questions to show underpinning knowledge. This can be supplemented by the follow ing types of physical or documentary evidence:

- Work products
- Organisational documentation
- Audio/photographic/video
- Delivery records
- Witness testimony
- Professional Discussion
- Inspection reports
- Notes and memos
- Candidate statements
- Organisational reports
- Simulation of accident or emergency

Please Note that photocopied or downloaded documents such as manufacturers' or industry guidance, H&S policies, Risk Assessments etc, are not normally acceptable evidence for GQA qualifications unless accompanied by a record of a professional discussion or Assessor statement confirming candidate knowledge of the subject. If you are in any doubt about the validity of evidence, please contact your GQA External Quality Advisor.

GQA QUALIFICATION IMPLEMENTATION REQUIREMENTS COVERING CENTRE APPROVAL, CANDIDATE ASSESSMENT AND ONGOING QUALITY ASSURANCE

This document indicates the requirements of Approved Centres delivering GQA qualifications and / or units of credit.

1. Equality of Opportunity

Equality of access to fair and valid assessment is necessary for all candidates undergoing assessment. This may mean making reasonable adjustments to normal assessment methods for candidates with particular or special assessment requirements. Candidates work patterns should not become a barrier to assessment, the organisation of which may have to be flexible. In the same way, reasonable adjustment arrangements may be necessary for candidates with a disability. For example, a candidate who is unable, through disability, to produce oral or written evidence, may be allowed to use the method they normally use as a substitute for the required form of communication. Reasonable adjustments need to be approved by GQA.

2. Recognised/Approved Assessment Centres

2.1 Individual centres must be approved by GQA to offer specific qualifications and / or units of credit. A centre may be a single organisation or a partnership of two or more organisations. It may operate at a single location or have satellites. For further details see the GQA booklet "Guide to Centre Approval". The Centre Approval process is carried out by a GQA approved EQA. Each Centre must maintain a centre file. It is important to be clear what the steps in the assessment process are:

- plan evidence collection and opportunities for assessment
- collect evidence
- judge evidence
- determine whether sufficient evidence has been presented
- make an assessment decision and give feedback to the candidate

NB Any deviation from the norm must be approved by a GQA EQA

2.2 Assessors and Verifiers

All Assessors of candidate performance must be competent, to make qualitative judgements, both in the skills they are assessing and in the assessment of candidates and hold the appropriate Assessor national award. Assessor occupational knowledge related to the qualifications being assessed is essential and must be illustrated to GQA prior to approval.

Internal Verifiers are responsible for the quality assurance of the assessment process within a centre. They should have a relevant occupational background, be competent in internal verification and hold the Internal Verifier national award. It is recommended that Internal Verifiers work towards national recognition of assessor competence.

EQAs are responsible for ensuring accurate and consistent standards of assessment across centres, qualifications, units of credit and over time. They should have a relevant occupational background, be competent in external quality assurance and hold the EQA national award.

GQA will approve and licence all individuals involved in the assessment and verification of its approved qualifications and / or units of credit. Individuals who are working towards the Assessor or Internal Verifier national awards can only be provisionally licensed. The judgement of provisional licence holders will need to be agreed/authorised by a fully qualified and GQA licensed individual who cannot carry out a dual role in relation to a specific candidate.

All GQA Assessors and Verifiers must undertake a minimum of 2 significant CPD activities in both occupational areas and assessment and verification. Reflective CPD records must be maintained and made available to GQA EQAs for review.

2.3 Centre Approval, Monitoring Reviews and Quality Assurance

The centre recognition/approval process is the start of a significant part of the awarding body's quality assurance system. The Approval process will begin with an EQA review of centre procedures to ascertain the potential centres ability to deliver GQA qualifications and / or units of credit. Centres will be expected to meet the relevant regulatory authority criteria for delivery of qualifications prior to initial approval; continued compliance with the criteria will be monitored through regular EQA visits. It is recommended that centre reviews are conducted at minimum every six months by a GQA EQA.

New or multi-site centres may be required to undertake quarterly or more frequent EV reviews to ensure that different locations can be seen to satisfy the national requirements.

GQA will ensure that unacceptable barriers relating to the assessment and internal verification of candidates in small companies do not deny recognition of competence to competent young workers. In such circumstances, GQA will demonstrate that its quality assurance procedures remain sufficient and rigorous to ensure that the competence outcomes have standing and credibility in the occupational area.

Enhanced quality procedures to ensure consistency of assessment and verification will be necessary and will include:
• a high level of sampling of assessment decisions N.B. In some instances the EQA may visit each assessment location and qualification / unit of credit candidate (e.g. single candidates dispersed throughout different small companies on government funded programmes)
• an in-depth scrutiny of assessment plans, materials and records
• specific centre guidance aimed at the successful implementation of qualifications and / or units of credit in SMEs via approved centre partnerships. This can include guidance on the quantity and quality of valid, authentic, and transferable evidence expected to be attributed to individual candidates
• ensuring centres are following the requirements prescribed in any appropriate assessment strategies and applicable codes of practice
• the identification and publication of good practice in centres

As part of the Quality Assurance process Proskills require an Enhanced External Verification process. This will be in the form of 1 significant underpinning knowledge question answered by the candidate for each unit of the qualification. The questions will be decided by GQA, and guideline answers must be submitted for approval and once approved kept in the Centre File to allow independent assessment

3. Qualification / Unit of Credit Candidates

All candidates must register with a GQA recognised/approved centre. The centre must maintain appropriate candidate personal details for external audit purposes etc.

The centre will provide candidates with advice and guidance on how to prepare for assessment and allocate an Assessor who will assess candidate ability to meet the requirements of the relevant qualifications / unit of credit. It is the candidate's responsibility to demonstrate competence and to do this they must:
• prove they can consistently meet all the qualification and / or unit of credit criteria
• provide evidence from work, that they can perform competently in all the contexts specified in the qualification / unit of credit requirements
• prove that they have the knowledge and understanding required to perform competently, even where they have not provided evidence from the workplace

It is therefore critical that quality evidence is provided in a format to allow the Assessor to make a decision and for the Internal Verifier to audit/verify his/her decision.

4. Evidence

A qualification and / or credit is awarded when a person has achieved the necessary outcomes of the qualification and / or unit of credit.
The specific combination of units necessary to achieve a qualification is detailed in the qualification structure. Certificates of Unit Credit can be awarded when candidates achieve any one, or more, units from the qualification.
The evidence the candidate brings forward is primarily evidence of performance of what he/she can do, not just what he/she knows. The assessment criteria / qualification requirements are described within the qualification and / or unit of credit itself and can incorporate practical skills and knowledge.
The assessor's role is to judge each relevant item of evidence. Each must be judged against the qualification and / or unit of credit requirements. It is not sensible to collect evidence against individual criteria. Nor is it effective. If items of evidence were collected for each of the criteria, the candidate may have to produce many items of evidence, well above the number actually required. GQA recommend holistic assessment.

When judging each item of evidence, the assessor is deciding whether the evidence:
• is authentic – i.e. actually produced by the candidate
• meets the criteria
• relates as appropriate to a context defined within the qualification and / or unit of credit
• confirms that the candidate has the required underpinning knowledgenin the qualification and / or unit of credit over time and range of work. The assessor must judge how long a time period is enough to be confident that the candidate can perform reliably to the standard. Unsupported evidence i.e. based on a single assessment/visit will not normally prove consistency.

When the assessor makes a decision about the candidate's competence, he or she examines all the evidence available to determine:
• if the evidence, as a whole, covers all the evidence of achievement
• whether the evidence indicates consistency in competent performance
• whether there is enough evidence on which to base an inference of competence
The answer can only be:
• yes (the candidate is competent)
• no (the candidate is not yet competent)
• there is insufficient evidence to make a decision

Consistency means that the individual is likely to achieve the standard in their work role, in the different activities defined

Performance evidence

Performance evidence can be what the individual actually produces, or the way the individual achieves the standard. One is called product evidence and the other process evidence.
Product evidence is tangible – you can look at it and feel it. Products can be inspected and the candidate can be asked questions about them.

In order to make a fair and objective assessment, the assessor must be able to answer the question: Is there sufficient evidence that the candidate can consistently meet the requirements of the qualification and / or unit of credit?
Process evidence describes the way the candidate has achieved an outcome – how they went about it. This may be, for example, the way the quality of products is checked or the way customer complaints are handled. This usually means observing the candidate in action.

Performance evidence may cover a number of outcomes. It makes sense to plan evidence collection so that what the candidate does, in the normal course of their job, can be related to different outcomes and units. The activities that clearly link to the qualification and / or unit of credit requirements are the things to concentrate on when planning evidence collection and assessment and when monitoring the candidate's progress. Look for opportunities in the candidate's job when evidence can be collected against a number of units at the same time.

Performance evidence can be:
• Naturally occurring – evidence produced in the normal course of work. Evidence of this sort is usually of high quality and reliable. It is also cost effective to collect naturally occurring evidence
• Taken from previous achievements – the candidate may be able to bring forward evidence from previous work experience to show that they are still competent to the standard.
• Evidence of prior achievement can be used when it can be shown to support a judgment that the candidate can still achieve the standard. So, the assessor must be satisfied that the evidence of prior achievement is sufficiently reliable to justify saying that the candidate is currently competent.
• Simulated – from circumstances specially designed to enable the candidate's performance to be assessed.
Simulation is generally not acceptable. The exceptions to this are:

o Dealing with emergencies
o Dealing with accidents
o Certain pre-approved real time simulators
o Limited other procedures that cannot be practically performed in the workplace, and for which sufficient evidence can be collected through other means.

NB:It is not always possible or feasible to collect naturally occurring evidence. It is likely that some simulation may be needed, when it may take too long to wait for the evidence to arise e.g. it may be an aspect of performance which occurs infrequently. An example of this may be evidence of how to deal with emergencies i.e. it makes sense to look for evidence from sources other than naturally occurring ones, rather than for, say, waiting for the building to burn down. Centres must obtain GQA EQA approval prior to the use of simulation.

Knowledge evidence

Being able to achieve a standard requires the ability to put knowledge to work. The qualification and / or unit of credit indicates the knowledge each person should use if they are to perform competently.

It should not be necessary to test all of the candidate's knowledge separately; however, any exception to this would be detailed in the relevant Assessment Strategy. Performance evidence could show that the candidate knows what he or she is doing. When this is not the case, or if the assessor is not convinced from the performance evidence, it may be necessary to check the individual's knowledge separately.

Oral or written assessments must clearly provide a suitable means of checking the breadth and depth of an individual's knowledge. Assessors will need to judge the best mix of knowledge evidence according to individual circumstances. Knowledge evidence is useful when deciding the quality of performance evidence, but must not be used in isolation to judge competence or as an alternative to performance evidence. Care must be taken that candidate evidence is auditable and verifiable.

NB: These Qualification implementation guidelines are generic across the full range of GQA qualifications. Further guidance on acceptable evidence on each qualification will be found in the Introduction to the Qualification section of the candidate booklet

SVQ CANDIDATE DECLARATION

Candidate Name…….

Centre/Company Name……..

Assessor(s) Name(s) ……

I acknowledge receipt of this copy of the GQA qualification booklet. The unit structure provides information on which units must be achieved to be awarded the SVQ. The individual units detail the necessary requirements etc that I must achieve. I understand that I will have an important role in preparing for and planning assessments and with guidance from the assessor I will collect and record relevant evidence.

I understand that all evidence should be produced by me or be directly attributable to me.

I have been informed of the appeals system and have been issued with a copy of the appeals procedure, should I want to appeal against any part of the assessment process.

I understand the assessments will be carried out with regard to the company/centre Equal Opportunities Policy.

Candidate Signature ……..

Date …….

UNIT 20 CARRY OUT PLANNED MAINTENANCE PROCEDURES ON ELECTRICAL PLANT AND EQUIPMENT (Level 7, 8 Credits)

Unit Overview

This unit is about your competence in maintaining electrical equipment in line with the manufacturers' and organisational practices and procedures. You will be required to complete the maintenance procedures in a timely manner, follow procedures and finally complete the appropriate documentation. You will be following your organisation's safe working practices at all times and working within the work permit procedures.

Unit Detail

Performance Criteria

In achieving this unit you must:

1. Work safely at all times, complying with health and safety and other relevant regulations and guidelines
2. Follow the relevant maintenance schedules to carry out the required work
3. Carry out the maintenance activities within the limits of your personal authority
4. Carry out the maintenance activities in the specified sequence and in an agreed time scale
5. Report any instances where the maintenance activities cannot be fully met or where there are identified defects outside the planned schedule
6. Complete relevant maintenance records accurately and pass them on to the appropriate person
7. Dispose of waste materials in accordance with safe working practices and approved procedures

Knowledge and Understanding

Within the limits of your responsibility you must demonstrate that you know and understand the following:

1. You must have a working knowledge and understanding of what your responsibilities are in respect of Health, Safety and Environment. This should include the limits of your personal responsibility, your legal responsibility for your own health and safety and the health and safety of others
2. You must have a working knowledge of the relevant regulations and the safe working practices and procedures required within your work area
3. You must have a working knowledge and understanding of the maintenance schedules and related specifications to which you are expected to work. This could be expected to include: authorisation procedures, product worksheets, tests, internal maintenance schedules, safe working practices, method statements, records, timescales
4. You must have a working knowledge and understanding of which maintenance methods and procedures are standard during maintenance and how they can be modified to optimise the work
5. You must have a working knowledge and understanding of maintenance records and documentation procedures
6. You must have a working knowledge and understanding of your responsibilities for the care and control of equipment that you use
7. You must have a working knowledge and understanding of maintenance authorisation procedures and limits of responsibility and authority in line with company and manufacturers' procedures

8. You must have a working knowledge and understanding of the appropriate methods and waste disposal procedures in relation to legislation, regulation and procedures for waste segregation

9. You must have a working knowledge and understanding of your responsibilities with regard to the reporting lines and procedures in your working environment

Scope:	1. The level and extent of responsibility will involve you being responsible for ensuring the maintenance procedures are carried out safely by following company defined procedures. You will be accountable for the integrity of the work and ensuring the work is recorded in a formal manner. Authorisation for proceeding with the work will be given by authorised signatories within the Permit to Work (PTW) system. 2. The plant or equipment to be maintained could include: • Rotating equipment and tools • Protection methods • Electrical distribution systems 3. The maintenance procedures and activities to be followed are fully defined within the company maintenance procedures. Typical procedures could include: • Tightening of connections • Checking outputs • Replacement of regularly changed "lifed" components (lamps, bulbs, indicators etc.) • Checking and adjusting movements/components • Inspection for damage/wear/corrosion/movement • Replacement of worn/damaged/corroded components Cleaning 4. The quality standards and accuracy to be achieved are as set down in QA and QC specifications.
Additional Notes:	The Knowledge and Understanding levels expressed indicate the minimum level of knowledge and understanding sufficient to perform your role in a manner that would normally be associated with the minimum acceptable performance of a competent person undertaking your role. The expression "working knowledge and understanding" indicates you are able to: • Identify and apply relevant information, procedures and practices to your usual role in your expected working environments needing only occasional recourse to reference materials • Describe, in your own words, the principles underlying your working methods. This does not mean the ability to quote "chapter and verse". Rather you must know what supporting information is available, how and where to find it and from whom to seek further guidance and information to confirm any additional required detail • Interpret and apply the information obtained to your role, your working practice and in your expected working environment

Assessor Comments/Feedback

UNIT 21 DEAL WITH VARIATIONS AND DEFECTS IN ELECTRICAL PLANT AND EQUIPMENT (Level 7, 6 Credits)

Unit Overview

This unit is about your competence in identifying, assessing and dealing with variations and defects in electrical products or assets. The reporting of recommendations to the appropriate people will be required. You will be following your organisation's safe working practices at all times and working within the work permit procedures.

This unit deals with the following:

- Deal with variations and defects in electrical plant and equipment

During this work you must take account of the relevant worksite operational requirements, procedures and safe working practices AS THEY APPLY TO YOU.

Unit Detail

Performance Criteria

In achieving this unit you must:

1. Work safely at all times, complying with health and safety and other relevant regulations and guidelines including the requirements for isolating and locking off the electrical supply and checking for zero electrical supply to the work area

2. Identify defects with regard to the product or asset specification

3. Assess the defects and determine action required to return the products and assets to specified condition

4. Report recommendations for action to the appropriate people promptly and in accordance with organisational procedures

5. Record details of defects in accordance with quality assurance and control systems and procedures

Knowledge and Understanding

Within the limits of your responsibility you must demonstrate that you know and understand the following:

1. You must have a working knowledge and understanding of what your responsibilities are in respect of Health, Safety and Environment. This should include the limits of your personal responsibility, your legal responsibility for your own health and safety and the health and safety of others

2. You must have a working knowledge of the relevant regulations and the safe working practices and procedures including the requirements for isolating and locking off the electrical supply and checking for zero electrical supply within your work area

3. You must have a working knowledge and understanding of engineering drawings and their related specifications. This should include the specifications to which you will be expected to work, including technical drawings (component, assembly, general arrangements, isometrics, 1st and 3rd angle projections), method statements and product worksheets, tolerances

4. You must have a working knowledge and understanding of the identification of defects in products and assets. This could include: observation and using relevant senses, fault reports, maintenance logs, operations logs

5. You must have a working knowledge and understanding of the methods of dealing with defects as defined by your company procedures

6. You must have a working knowledge and understanding of the methods of dealing with defects and variations and what factors determine the actions to be taken, and why it is important to maintain records of the checks made and the assessments that result from those checks, what information should be entered on those records and where they should be kept

7. You must have a working knowledge and understanding of the quality control systems and documentation procedures that are specified by your company

8. You must have a working knowledge and understanding of your responsibilities with regard to the reporting lines and procedures in your working environment

Notes

The following terms have a specific meaning in this unit:

Scope:	1. The level and extent of responsibility will involve you being responsible for ensuring the maintenance procedures are carried out safely by following company defined procedures. You will be accountable for the integrity of the work and ensuring the work is recorded in a formal manner. Authorisation for proceeding with the work will be given by authorised signatories within the Permit to Work (PTW) system. 2. The assets or equipment to be maintained could include: • Rotating equipment and tools • Protection methods • Electrical distribution systems 3. The type and complexity of defects will vary from severe damage with the potential for immediate failure to minor damage.
Additional Notes:	The Knowledge and Understanding levels expressed indicate the minimum level of knowledge and understanding sufficient to perform your role in a manner that would normally be associated with the minimum acceptable performance of a competent person undertaking your role. The expression ”working knowledge and understanding” indicates you are able to: • Identify and apply relevant information, procedures and practices to your usual role in your expected working environments needing only occasional recourse to reference materials • Describe, in your own words, the principles underlying your working methods. This does not mean the ability to quote “chapter and verse”. Rather you must know what supporting information is available, how and where to find it and from whom to seek further guidance and information to confirm any additional required detail • Interpret and apply the information obtained to your role, your working practice and in your expected working environment

Assessor Comments/Feedback

UNIT 22 DIAGNOSE AND DETERMINE THE CAUSES OF FAULTS IN ELECTRICAL PLANT AND EQUIPMENT (Level 7, 6 Credits)

Unit Overview

This unit is about your competence in diagnosing and finding faults within electrical plant and equipment. You will be required to select the most appropriate fault finding technique and tools to locate the fault and on completion notify the appropriate people. To record the results you will follow company procedures and your organisation's safe working practices at all times and work within the work permit procedures.

This unit deals with the following:

- Diagnose and determine the causes of faults in electrical plant and equipment

During this work you must take account of the relevant installation procedures and safe working practices AS THEY APPLY TO YOU.

Unit Detail

Performance Criteria

In achieving this unit you must:

1. Work safely at all times, complying with health and safety and other relevant regulations and guidelines including the requirements for isolating and locking off the electrical supply and checking for zero electrical supply to the work area

2. Review and use all relevant information on the symptoms and problems associated with the products or assets

3. Investigate and establish the most likely causes of the faults

4. Select, use and apply diagnostic techniques, tools and aids to locate faults

5. Complete the fault diagnosis within the agreed time and inform the appropriate people when this cannot be achieved

6. Determine the implications of the fault for other work and for safety considerations

7. Use the evidence gained to draw valid conclusions about the nature and probable cause of the fault

8. Record details on the extent and location of the faults in an appropriate format

Knowledge and Understanding

Within the limits of your responsibility you must demonstrate that you know and understand the following:

1. You must have a working knowledge and understanding of what your responsibilities are in respect of Health, Safety and Environment. This should include the limits of your personal responsibility, your legal responsibility for your own health and safety and the health and safety of others

2. You must have a working knowledge of the relevant regulations and the safe working practices and procedures including the requirements for isolating and locking off the electrical supply and checking for zero electrical supply within your work area

3. You must have a working knowledge and understanding of fault diagnostic aids. This could be expected to include electrical test equipment, historical data and schematic drawings

4. You must have a working knowledge and understanding of fault finding methods and techniques. This should include how to investigate problems, how to identify the extent and location of problems and what to do when causes are difficult to find, and which actions can be taken to deal with the fault

5. You must have a working knowledge and understanding of analysis methods and techniques. This could be expected to include historical data, comparison, and circuit measurements

6. You must have a working knowledge and understanding of company procedures and manufacturers' guidelines for the operating and care of test equipment and control procedures

7. You must have a working knowledge and understanding of assessing the likely risks arising from faults such as fire, electric shock and damage to plant

8. You must have a working knowledge and understanding of maintenance reporting documentation and control procedures and how descriptions should be presented, why it is important to record results of the diagnosis, and why it is important to relay conclusions on to others in a timespan appropriate to the nature of the problem

9. You must have a working knowledge and understanding of your responsibilities with regard to the reporting lines and procedures in your working environment

Notes

The following terms have a specific meaning in this unit:

Scope:	1. The level and extent of responsibility extends to determination and follow up of the information needed to support a clear and accurate definition of the problem and the selection and analysis of diagnostic procedures appropriate to the problem as identified. In some cases, you may still be expected to refer to others for final authorisations, even though you remain responsible for identifying and implementing decisions. 2. The types of plant and equipment may be single or multiple technologies. Typical plant and equipment could be: • Rotating equipment and tools • Protection methods • Electrical distribution systems 3. The type of fault finding techniques or procedures, diagnostic aids and equipment could include: • Function testing • Comparison diagnosis • Substitution • Examination of failed components • Operational performance testing • Timed monitoring • Sectional isolation 4. The type and range of problems and faults may arise from environmental factors such as exposure to sudden temperature changes and/or from human error and/or from materials that have been used in or by the plant and equipment and/or from inherent features of the product/asset such as design aspects, age, and/or natural wear and tear. 5. The level and complexity of diagnosis can be achieved by applying procedures which are formally specified or which are devised by the candidate in response to the symptoms of the fault. 6. The record keeping systems and procedures to include: • Test results • Data sheets • Company procedures

Additional Notes:	The Knowledge and Understanding levels expressed indicate the minimum level of knowledge and understanding sufficient to perform your role in a manner that would normally be associated with the minimum acceptable performance of a competent person undertaking your role. The expression ”working knowledge and understanding” indicates you are able to: • Identify and apply relevant information, procedures and practices to your usual role in your expected working environments needing only occasional recourse to reference materials • Describe, in your own words, the principles underlying your working methods. This does not mean the ability to quote “chapter and verse”. Rather you must know what supporting information is available, how and where to find it and from whom to seek further guidance and information to confirm any additional required detail • Interpret and apply the information obtained to your role, your working practice and in your expected working environment

Assessor Comments/Feedback

UNIT 8 HANDOVER PROCESS ENGINEERING PLANT AND EQUIPMENT (Level 6, 5 Credits)

Unit Overview

This unit is about your competence in completing safe and effective handover of plant and equipment. It includes the handover to others and your acceptance and confirmation of responsibility for the control of the plant and equipment.

This unit is common to the Electrical, Mechanical and Instrument and Control disciplines.

This unit deals with the following:

- Handover plant and equipment
- Accept and confirm responsibility for the control of plant and equipment

During this work you must take account of the relevant worksite operational requirements, procedures and safe working practices AS THEY APPLY TO YOU.

Unit Detail

Performance Criteria

In achieving this unit you must:

1. Work safely at all times, complying with health and safety and other relevant regulations and guidelines
2. Confirm and define the condition of the engineering products or assets in accordance with specifications
3. Clearly define and obtain agreement on the moment of transfer of responsibility
4. Communicate handover of control as specified
5. Produce and maintain records of the handover in accordance with organisational procedures
6. Make sure that the information received at handover is accurate, up-to-date and complete
7. Seek additional information if there are any areas of doubt or lack of clarity
8. Provide proper support and co-ordination to those transferring control
9. Confirm and record acceptance of responsibility and control in line with agreed procedures

Knowledge and Understanding

Within the limits of your responsibility you must demonstrate that you know and understand the following:

1. You must have a working knowledge and understanding of what your responsibilities are in respect of Health, Safety and Environment. This should include the limits of your personal responsibility, your legal responsibility for your own health and safety and the health and safety of others
2. You must have a working knowledge of the relevant regulations and the safe working practices and procedures required within your work area
3. You must have a working knowledge and understanding of the types of support through your working relationships that can be offered to those transferring control

4. You must have a working knowledge and understanding of the handover procedures for products or assets. This should include when the handover should occur, how to confirm the precise moment of transfer, and why it is important to define the precise moment of transfer

5. You must have a working knowledge and understanding of the record and documentation systems and procedures. This should include the level of detail on the condition of engineering products/assets as required by different parties, how to confirm that information received at handover is accurate and complete, and what the types of situation are where additional information and clarification might be required

6. You must have a working knowledge and understanding of your responsibilities with regard to the reporting lines and procedures in your working environment

Notes

The following terms have a specific meaning in this unit:

Scope:	1. The level and extent of responsibility is limited to working within clearly defined specifications for handover situations. In some cases, you may still be expected to refer to others for final authorisation, even though you remain responsible for identifying and implementing decisions. 2. The type of products or assets could include: • Systems & sub-systems • Process equipment • New installations 3. The handover procedures and environments may be under operational or nonoperational conditions. A typical example of a handover during operational conditions could be: • Shift changes on continuous process plants A typical example of handover under non-operational conditions could be: • Between maintenance and operational teams at the end of an overhaul • Handover of a large on-going maintenance project • Handover from in-house maintenance teams to outside specialists • Shift to shift 4. The parties to handover to could include: • Clients • Production operations • Maintenance engineers • Line supervisors 5. The complexity of handovers could include: • Written • Oral • Test documentation

Additional Notes:	The Knowledge and Understanding levels expressed indicate the minimum level of knowledge and understanding sufficient to perform your role in a manner that would normally be associated with the minimum acceptable performance of a competent person undertaking your role. The expression ”working knowledge and understanding” indicates you are able to: • Identify and apply relevant information, procedures and practices to your usual role in your expected working environments needing only occasional recourse to reference materials • Describe, in your own words, the principles underlying your working methods. This does not mean the ability to quote “chapter and verse”. Rather you must know what supporting information is available, how and where to find it and from whom to seek further guidance and information to confirm any additional required detail • Interpret and apply the information obtained to your role, your working practice and in your expected working environment

Assessor Comments/Feedback

UNIT 9 REINSTATE THE WORK AREA AFTER COMPLETING THE MAINTENANCE OF PROCESS ENGINEERING PLANT AND EQUIPMENT (Level 6, 5 Credits)

Unit Overview

This unit is about your competence in restoring the work area to a safe condition prior to returning to operations. You will be required to identify and separate waste materials for disposal and identify and separate out materials suitable for storage and further use. You will be following your organisation's safe working practices at all times and working within the work permit procedures.

This unit is common to the Electrical, Mechanical and Instrument and Control disciplines.

This unit deals with the following:

- Reinstate the work area after completing the maintenance of process engineering plant and equipment

During this work you must take account of the relevant worksite operational requirements, procedures and safe working practices AS THEY APPLY TO YOU.

Unit Detail

Performance Criteria

In achieving this unit you must:

1. Work safely at all times, complying with health and safety and other relevant regulations and guidelines
2. Separate equipment, components, and materials for re-use from waste items and materials
3. Store reusable materials and equipment in an appropriate location
4. Dispose of waste materials in line with organisational and environmental safe procedures
5. Restore the work areas to a safe condition in accordance with agreed requirements and schedules
6. Deal promptly and effectively with problems within your control and report those that cannot be solved

Knowledge and Understanding

Within the limits of your responsibility you must demonstrate that you know and understand the following:

1. You must have a working knowledge and understanding of what your responsibilities are in respect of Health, Safety and Environment. This should include the limits of your personal responsibility, your legal responsibility for your own health and safety and the health and safety of others
2. You must have a working knowledge of the relevant regulations and the safe working practices and procedures required within your work area
3. You must have a working knowledge and understanding of the work area restoration requirements and the relevant health and safety, and organisational safe working practices and procedures
4. You must have a working knowledge and understanding of the material and equipment stores procedures and organisational procedures which you have to follow

5. You must have a working knowledge and understanding of the appropriate waste disposal methods and procedures for different types of waste, in accordance with current health and safety regulations, relevant legislation and organisational practice

6. You must have a working knowledge and understanding of your responsibilities with regard to the reporting lines and procedures in your working environment

Notes

The following terms have a specific meaning in this unit:

Scope:	1. The level and extent of responsibility will involve you being responsible for ensuring the equipment and work site is safe for others or yourself to work on by following defined procedures. You will be accountable for the integrity of the work site and ensuring the work is recorded in a formal manner. Authorisation for proceeding with the work will be given by authorised signatories within the Permit to Work system. 2. The resources to be stored are materials and equipment for use at sometime in the future and retained either in secure, enclosed containment or unenclosed within a work area or storage facility. Resources could be identified, sorted, protected and evaluated for further use. Appropriate storage facilities should be used where necessary. Typical resources could include: • Consumables • Assembly/alignment aids • Storing/stacking equipment • Lifting equipment • Safety equipment • Personal Protective Equipment/shielding equipment • Excess materials • Process and ancillary equipment • Industrial gas cylinders • Tools/equipment • Protection sheeting • Re-usable components assemblies 3. The disposal of hazardous and non-hazardous materials could include: • Non hazardous: • Packaging/protecting materials • Swarf • Material offcuts • Replaced “lifed” consumables Hazardous: • Chemicals and fluids e.g. solvents and cleaning agents • Sharp objects/offcuts • Asbestos or asbestos based • Oils and greases

Additional Notes:	The Knowledge and Understanding levels expressed indicate the minimum level of knowledge and understanding sufficient to perform your role in a manner that would normally be associated with the minimum acceptable performance of a competent person undertaking your role. The expression ”working knowledge and understanding” indicates you are able to: • Identify and apply relevant information, procedures and practices to your usual role in your expected working environments needing only occasional recourse to reference materials • Describe, in your own words, the principles underlying your working methods. This does not mean the ability to quote “chapter and verse”. Rather you must know what supporting information is available, how and where to find it and from whom to seek further guidance and information to confirm any additional required detail • Interpret and apply the information obtained to your role, your working practice and in your expected working environment

Assessor Comments/Feedback

UNIT 10 MINIMISE RISKS TO LIFE, PROPERTY AND THE ENVIRONMENT (Level 6, 6 Credits)

Unit Overview

This unit is about your competence in minimising the risks to life, property and the environment. You will be required to identify hazards, assess the risks involved, minimise the risks by implementing control measures and providing ongoing monitoring. All the relevant safety systems will require updating.

This unit is common to the Electrical, Mechanical and Instrument and Control disciplines.

This unit deals with the following:

- Minimise risks to life, property and the environment

During this work you must take account of the relevant worksite operational requirements, procedures and safe working practices AS THEY APPLY TO YOU.

Unit Detail

Performance Criteria

In achieving this unit you must:

1. Work safely in accordance with the regulations for your work environment
2. Identify hazards and assess the level of risk involved
3. Minimise the risks and implement control measures in the minimum agreed timescales
4. Inform all those who are affected of the risk control measures in place and clarify any implications for them as required
5. Ensure that information provided for safety system records is clear, accurate and up-to-date
6. Monitor the effectiveness of the risk control measures and take prompt additional action where needed

Knowledge and Understanding

Within the limits of your responsibility you must demonstrate that you know and understand the following:

1. You must have a working knowledge and understanding of what your responsibilities are in respect of Health, Safety and Environment. This should include the limits of your personal responsibility, your legal responsibility for your own health and safety and the health and safety of others
2. You must have a working knowledge of the relevant regulations and the safe working practices and procedures required within your work area
3. You must have a working knowledge and understanding of the types of hazards involving processes, tools, equipment and materials that are likely to be met whilst carrying out the maintenance of plant and equipment
4. You must have a working knowledge and understanding of the safety assessment methods and techniques to be used
5. You must have a working knowledge and understanding of the actions to minimise risk from hazards

6. You must have a working knowledge and understanding of the safety reporting procedures and documentation for your working environment

7. You must have a working knowledge and understanding of your responsibilities with regard to the reporting lines and procedures for your working environment

Notes

The following terms have a specific meaning in this unit:

Scope:	1. The level and extent of responsibility is limited to working within agreed specifications and following clearly defined procedures with regard to identifying and dealing with risks to life, property and the environment. You will be expected to take immediate action appropriate to the circumstances. 2. The type of hazards involved could be those that may affect the safety and/or integrity of: • People • Environment • Operational Equipment 3. The risk control measures to be implemented will include those approved by the company. 4. The type of action to be taken will be limited to your responsibility but could include: Removal of the hazard • Raising the alarm • Shutting down the process • Stopping the work 5. The methods of communicating or reporting actions will be in accordance with the requirements of the company
Additional Notes:	The Knowledge and Understanding levels expressed indicate the minimum level of knowledge and understanding sufficient to perform your role in a manner that would normally be associated with the minimum acceptable performance of a competent person undertaking your role. The expression “working knowledge and understanding” indicates you are able to: • Identify and apply relevant information, procedures and practices to your usual role in your expected working environments needing only occasional recourse to reference materials • Describe, in your own words, the principles underlying your working methods. This does not mean the ability to quote “chapter and verse”. Rather you must know what supporting information is available, how and where to find it and from whom to seek further guidance and information to confirm any additional required detail • Interpret and apply the information obtained to your role, your working practice and in your expected working environment

UNIT 11 WORK SAFELY, MINIMISE RISK AND COMPLY WITH EMERGENCY PROCEDURES (Level 6, 6 Credits)

Unit Overview

This unit is about your competence in working safely, dealing with risks by taking action to minimise the risks and where necessary complying with the emergency procedures.

You will be following your organisation's safe working practices at all times.

This unit is common to the Electrical, Mechanical and Instrument and Control disciplines.

This unit deals with the following:

- Work safely, minimise risk and comply with emergency procedures

During this work you must take account of the relevant worksite operational requirements, procedures and safe working practices AS THEY APPLY TO YOU.

Unit Detail

Performance Criteria

In achieving this unit you must:

1. Work safely at all times, complying with health and safety and other relevant regulations and guidelines
2. Call for expert help in the event of contingencies occurring, using warning systems as appropriate
3. Take prompt and appropriate action to minimise risk of personal and third party injury as a first priority and then damage to property and equipment
4. Follow shutdown and evacuation procedures promptly and correctly
5. Deal safely with dangers that can be contained using appropriate equipment and materials, in accordance with organisational policy and procedures

Knowledge and Understanding

Within the limits of your responsibility you must demonstrate that you know and understand the following:

1. You must have a working knowledge and understanding of what your responsibilities are in respect of Health, Safety and Environment. This should include the limits of your personal responsibility, your legal responsibility for your own health and safety and the health and safety of others
2. You must have a working knowledge of the relevant regulations and the safe working practices and procedures required within your work area
3. You must have a working knowledge and understanding of First Aid procedures. This should include the sources of competent assistance including the location of local first-aid facilities and first-aiders and systems for alerting relevant professional authorities

4. You must have a working knowledge and understanding of the evacuation procedures. This should include what the procedures for shutdown and evacuation are, and where information on shutdown and evacuation procedures can be obtained

5. You must have a working knowledge and understanding of contingency reporting documentation and systems relevant to the procedures at the workplace. This could be expected to include local or company reporting procedures for near misses or accidents

6. You must have a working knowledge and understanding of your responsibilities with regard to the reporting lines and procedures in your working environment

Notes

The following terms have a specific meaning in this unit:

Scope:	1. The level and extent of responsibility is limited to working within an overall risk control strategy which has been developed by safety specialists and which includes detailed criteria for identifying risks together with clearly defined procedures for action which must be followed. In some cases, you may be expected to refer to others for final authorisations, even though you remain responsible for identifying and implementing decisions. 2. The types of contingencies, i.e. accidents and incidents by their very nature are unexpected but the company risk control strategy sets out the responses that you should follow in order to limit risks arising. 3. The actions to be taken could include: • Isolation of hazard/containment • Stopping activities • Reporting to appropriate person • Restriction of others exposure to hazard • Implementation of alarm and evacuation procedures to assembly point
Additional Notes:	The Knowledge and Understanding levels expressed indicate the minimum level of knowledge and understanding sufficient to perform your role in a manner that would normally be associated with the minimum acceptable performance of a competent person undertaking your role. The expression "working knowledge and understanding" indicates you are able to: • Identify and apply relevant information, procedures and practices to your usual role in your expected working environments needing only occasional recourse to reference materials • Describe, in your own words, the principles underlying your working methods. This does not mean the ability to quote "chapter and verse". Rather you must know what supporting information is available, how and where to find it and from whom to seek further guidance and information to confirm any additional required detail • Interpret and apply the information obtained to your role, your working practice and in your expected working environment

Assessor Comments/Feedback

UNIT 12 CONTRIBUTE TO EFFECTIVE WORKING RELATIONSHIPS (Level 6, 2 Credits)

Unit Overview

This unit is about your competence in developing and maintaining effective working relationships with others. This may include colleagues, supervisors and visitors and may be frequent or infrequent. Both oral and written methods will be used.

This unit is common to the Electrical, Mechanical and Instrument and Control disciplines.

This unit deals with the following:

- Contribute to effective working relationships

During this work you must take account of the relevant worksite operational requirements, procedures and safe working practices AS THEY APPLY TO YOU.

Unit Detail

Performance Criteria

In achieving this unit you must:

1. Establish and maintain productive working relationships

2. Deal with disagreements in an amicable and constructive way so that good relationships are maintained

3. Keep others informed about work plans or activities which affect them

4. Seek assistance from others in a polite and courteous way without causing undue disruption to normal work activities

5. Respond in a timely and positive way when others ask for help or information

Knowledge and Understanding

Within the limits of your responsibility you must demonstrate that you know and understand the following:

1. You must have a working knowledge and understanding of how to create and maintain working relationships, and why it is important to do so

2. You must have a working knowledge and understanding of what the types of problems are that can affect relationships, and what actions can be taken to deal with specific difficulties

3. You must have a working knowledge and understanding of what your own and others responsibilities are with regards to lines of communication and responsibilities

Notes

The following terms have a specific meaning in this unit:

Scope:	1. The groups of people with which relationships should be maintained. Working relationships need to be fostered with other people with whom you come into contact as part of your work role either on a frequent or regular basis, or occasionally only. Typical relationships could be with: • Those for whom you have responsibility • Clients • Other disciplines • Security/safety personnel • Those to whom you are responsible • Colleagues • Suppliers 2. Effective working relations require communication with others. This could include: Formal/informal • Written • Oral Examples could include: Tool box talks • Safety feedback • Complaints • Appraisals/performance reviews • Inductions • Production loop • Liaison between training and workplace contacts
Additional Notes:	The Knowledge and Understanding levels expressed indicate the minimum level of knowledge and understanding sufficient to perform your role in a manner that would normally be associated with the minimum acceptable performance of a competent person undertaking your role. The expression ”working knowledge and understanding” indicates you are able to: • Identify and apply relevant information, procedures and practices to your usual role in your expected working environments needing only occasional recourse to reference materials • Describe, in your own words, the principles underlying your working methods. This does not mean the ability to quote “chapter and verse”. Rather you must know what supporting information is available, how and where to find it and from whom to seek further guidance and information to confirm any additional required detail • Interpret and apply the information obtained to your role, your working practice and in your expected working environment

<u>Assessor Comments/Feedback</u>

UNIT 13 PREPARE WORK AREAS FOR ENGINEERING ACTIVITIES (Level 6, 7 Credits)

Unit Overview

This unit is about your competence in preparing the work area in order to carry out the maintenance of plant and equipment. You will be involved in activities such as clearing materials and equipment from the worksite, providing service supplies and completing isolations. You will be following your organisation's safe working practices and working within the work permit procedures.

This unit is common to the Mechanical, Electrical and Instrumentation and Control disciplines.

This unit deals with the following:

- Prepare work areas for the maintenance of process engineering plant and equipment

During this work you must take account of the relevant worksite operational requirements, procedures and safe working practices AS THEY APPLY TO YOU.

Unit Detail

Performance Criteria
In achieving this unit you must:

1. Work safely at all times, complying with health and safety and other relevant regulations and guidelines

2. Ensure that the work environment is suitable for the work activities to be undertaken

3. Ensure that all necessary service supplies are connected and ready for use

4. Prepare the work areas so that they are ready for the engineering activities to be carried out

5. Make sure that required safety arrangements are in place to protect other workers from activities likely to disrupt normal working

6. Report the completion of preparations in line with organisational procedures

7. Deal promptly and effectively with problems within your control and report those that cannot be resolved

Knowledge and Understanding

Within the limits of your responsibility you must demonstrate that you know and understand the following:

1. You must have a working knowledge and understanding of what your responsibilities are in respect of Health, Safety and Environment. This should include the limits of your personal responsibility, your legal responsibility for your own health and safety and the health and safety of others

2. You must have a working knowledge of the relevant regulations and the safe working practices and procedures required within your work area

3. You must have a working knowledge and understanding of what the work area preparation requirements and methods are. This could be expected to include the location and whether condition of work environments are appropriate in terms of layout, accessibility, isolations, safety and security

4. You must have a working knowledge of the potential problems and consequences of not preparing work areas correctly in relation to hazards which may occur

5. You must have a working knowledge and understanding of the connection and operation of the applicable supply services and connection procedures related to the equipment relevant to the industry, including pneumatic, electrical and hydraulic tools

6. You must have a working knowledge and understanding of your responsibilities with regard to the reporting lines and procedures in your working environment

Notes

The following terms have a specific meaning in this unit:

Scope:	1. The level and extent of responsibility will involve you being responsible for ensuring the preparations are carried out safely by following company defined procedures. You will be accountable for the integrity of the work and ensuring the work is recorded in a formal manner. Authorisation for proceeding with the work will be given by authorised signatories within the Permit to Work system. 2. The type of work area preparations could involve ensuring that the location and condition of work environments are appropriate in terms of: • Layout • Security • Safety • Isolations (where relevant) • Accessibility 3. The type of work area protection and safety requirements will take into account any hazards due to the particular working conditions that could also include: ? Working on access structures (scaffold) • At height • Inside systems and plant • Adverse weather conditions • Confined spaces • In shafts
Additional Notes:	The Knowledge and Understanding levels expressed indicate the minimum level of knowledge and understanding sufficient to perform your role in a manner that would normally be associated with the minimum acceptable performance of a competent person undertaking your role. The expression ”working knowledge and understanding” indicates you are able to: • Identify and apply relevant information, procedures and practices to your usual role in your expected working environments needing only occasional recourse to reference materials • Describe, in your own words, the principles underlying your working methods. This does not mean the ability to quote “chapter and verse”. Rather you must know what supporting information is available, how and where to find it and from whom to seek further guidance and information to confirm any additional required detail • Interpret and apply the information obtained to your role, your working practice and in your expected working environment

Assessor Comments/Feedback

UNIT 23 PREPARE EQUIPMENT IN SUPPORT OF ELECTRICAL ENGINEERING ACTIVITIES (Level 6, 5 Credits)

Unit Overview

This unit is about your competence in preparing equipment in order to carry out the maintenance of plant and equipment. You will be required to obtain and prepare the electrical equipment including making sure the safety arrangements are in place and report to the appropriate authority when completed. You will be following your organisation's safe working practices and working within the work permit procedures.

This unit deals with the following:

- Prepare equipment in support of electrical engineering activities

During this work you must take account of the relevant worksite operational requirements, procedures and safe working practices AS THEY APPLY TO YOU.

Unit Detail

Performance Criteria

In achieving this unit you must:

1. Work safely at all times, complying with health and safety and other relevant regulations and guidelines

2. Obtain all the required equipment and ensure that it is in safe and usable condition

3. Carry out the necessary preparations to equipment in line with work requirements including the requirements for isolating and locking off the electrical supply and checking for zero electrical supply to the work area

4. Make sure that required safety arrangements are in place to protect other workers from activities likely to disrupt normal working

5. Report completion of preparations in line with organisational procedures

6. Deal promptly and effectively with problems within your control and report those that cannot be solved

Knowledge and Understanding

Within the limits of your responsibility you must demonstrate that you know and understand the following:

1. You must have a working knowledge and understanding of what your responsibilities are in respect of Health, Safety and Environment. This should include the limits of your personal responsibility, your legal responsibility for your own health and safety and the health and safety of others

2. You must have a working knowledge of the relevant regulations and the safe working practices and procedures including the requirements for isolating and locking off the electrical supply and checking for zero electrical supply within your work area

3. You must have a working knowledge and understanding of equipment preparation methods and procedures. This could be expected to include checking the working condition and operation of standard equipment, including safety checks and inspections

4. You must have a working knowledge and understanding of the types of equipment which may be used. This could be expected to include fixed (machine) and/or portable (hand or machine)

5. You must have a working knowledge and understanding of what your responsibilities are for ensuring the security of tools and equipment that you use. This could be expected to include ingress protection ratings, explosion protection rating equipment, corrosion, portable appliance testing, heating and ventilation and permit systems

6. You must have a working knowledge and understanding of your responsibilities with regard to the reporting lines and procedures in your working environment

Notes

The following terms have a specific meaning in this unit:

Scope:	1. Level and extent of responsibility In the context of this standard, responsibility extends to determining and then implementing the preparations necessary where specifications of requirements may be absent or incomplete in some way. In some cases, you may still be expected to refer to others for final authorisation, even though you remain responsible for identifying and implementing decisions. 2. Equipment safety checks Equipment safety checks and inspections will be carried out to ensure that there are no obvious faults present, in accordance with company procedures. 3. Types of equipment to be prepared could include: • Protective clothing/equipment • Lifting & handling equipment • Access structures (typically ladders, steps, trestles, youngman boards, temporary staging, access hoists… "cherry-pickers") • Process equipment • Tools • Safety equipment/harnesses • Temporary electrical supplies 4. Types of equipment preparation • Equipment preparation could involve selection, inspection, changing settings or the calibrating as well as routine checks on its condition, operation, suitability and safety, in compliance with company procedures.
Additional Notes:	The Knowledge and Understanding levels expressed indicate the minimum level of knowledge and understanding sufficient to perform your role in a manner that would normally be associated with the minimum acceptable performance of a competent person undertaking your role. The expression "working knowledge and understanding" indicates you are able to: • Identify and apply relevant information, procedures and practices to your usual role in your expected working environments needing only occasional recourse to reference materials • Describe, in your own words, the principles underlying your working methods. This does not mean the ability to quote "chapter and verse". Rather you must know what supporting information is available, how and where to find it and from whom to seek further guidance and information to confirm any additional required detail • Interpret and apply the information obtained to your role, your working practice and in your expected working environment

Assessor Comments/Feedback

UNIT 24 PREPARE MATERIALS FOR THE MAINTENANCE OF ELECTRICAL PLANT AND EQUIPMENT (Level 6, 4 Credits)

Unit Overview

This unit is about your competence in preparing the materials in order to carry out the maintenance of electrical plant and equipment. You will be required to check the quality and quantity of the materials, determine how the materials should be prepared and report on completion. You will be following your organisation's safe working practices and working within the work permit procedures.

This unit deals with the following:

- Prepare materials for the maintenance of electrical plant and equipment

During this work you must take account of the relevant worksite operational requirements, procedures and safe working practices AS THEY APPLY TO YOU.

Unit Detail

Performance Criteria

In achieving this unit you must:

1. Work safely at all times, complying with health and safety and other relevant regulations and guidelines including the requirements for isolating and locking off the electrical supply and checking for zero electrical supply to the work area

2. Obtain the required materials and check them for quantity and quality

3. Determine how the materials need to be prepared

4. Carry out the preparations using suitable equipment

5. Report completion of preparations in line with organisational procedures

6. Deal promptly and effectively with problems within your control and report those that cannot be solved

Knowledge and Understanding

Within the limits of your responsibility you must demonstrate that you know and understand the following:

1. You must have a working knowledge and understanding of what your responsibilities are in respect of Health, Safety and Environment. This should include the limits of your personal responsibility, your legal responsibility for your own health and safety and the health and safety of others

2. You must have a working knowledge of the relevant regulations and the safe working practices and procedures including the requirements for isolating and locking off the electrical supply and checking for zero electrical supply within your work area

3. You must have a working knowledge and understanding of how to identify the materials you are to use and recognise defects in the quality of them

4. You must have a working knowledge and understanding of the types of handling and preparation methods and techniques needed for different materials

5. You must have a working knowledge and understanding of what your responsibilities are for ensuring the security of the tools and equipment and their control procedures that you use. This could be expected to include: ingress protection ratings, portable appliance testing, explosion protection rating equipment, heating and ventilation, corrosion, permit systems

6. You must have a working knowledge and understanding of your responsibilities with regard to the reporting lines and procedures in your working environment

Notes

The following terms have a specific meaning in this unit:

Scope:	1. The level and extent of responsibility will involve you being responsible for ensuring the preparations are carried out safely by following company defined procedures. You will be accountable for the integrity of the work and ensuring the work is recorded in a formal manner. Authorisation for proceeding with the work will be given by authorised signatories within the Permit to Work (PTW) system. 2. The type and complexity of material preparations involve standard treatments and/or require taking instrument readings for analysis. Typical preparation could include: • Identification • Storage • Confirming alignment • Setting out • Cleaning • Protecting/preserving • Security • Precision measuring • Checking quality and quantity • Asset/product orientation 3. The types of materials could include materials and/or components used in the engineering activity, including: • Conductors • Sub components • Test equipment • Spare parts

Additional Notes:	The Knowledge and Understanding levels expressed indicate the minimum level of knowledge and understanding sufficient to perform your role in a manner that would normally be associated with the minimum acceptable performance of a competent person undertaking your role. The expression ”working knowledge and understanding” indicates you are able to: • Identify and apply relevant information, procedures and practices to your usual role in your expected working environments needing only occasional recourse to reference materials • Describe, in your own words, the principles underlying your working methods. This does not mean the ability to quote “chapter and verse”. Rather you must know what supporting information is available, how and where to find it and from whom to seek further guidance and information to confirm any additional required detail • Interpret and apply the information obtained to your role, your working practice and in your expected working environment

Assessor Comments/Feedback

UNIT 25 ADJUST ELECTRICAL PLANT AND EQUIPMENT TO MEET OPERATIONAL REQUIREMENTS (Level 7, 6 Credits)

Unit Overview

This unit is about your competence in adjusting electrical equipment in line with the manufacturers' and organisation's parameters. You will be required to identify the equipment to be adjusted, carry out the adjustment and complete the appropriate documentation. You will be following your organisation's safe working practices and working within the work permit procedures.

This unit deals with the following:

- Adjust electrical plant and equipment to meet operational requirements

During this work you must take account of the relevant worksite operational requirements, procedures and safe working practices AS THEY APPLY TO YOU.

Unit Detail

Performance Criteria

In achieving this unit you must:

1. Work safely at all times, complying with health and safety and other relevant regulations and guidelines

2. Follow the appropriate operating specifications for the equipment being maintained including the requirements for isolating and locking off the electrical supply and checking for zero electrical supply to the work area

3. Carry out adjustments within the limits of your personal authority

4. Make the required adjustments in the specified sequence and in an agreed time scale

5. Confirm that the adjusted equipment meets the required operating specification

6. Report any instances where the equipment fails to meet the required performance after adjustments or where there are identified defects outside the required adjustments

7. Maintain documentation in accordance with organisational requirements

Knowledge and Understanding

Within the limits of your responsibility you must demonstrate that you know and understand the following:

1. You must have a working knowledge and understanding of what your responsibilities are in respect of Health, Safety and Environment. This should include the limits of your personal responsibility, your legal responsibility for your own health and safety and the health and safety of others

2. You must have a working knowledge of the relevant regulations and the safe working practices and procedures including the requirements for isolating and locking off the electrical supply and checking for zero electrical supply within your work area

3. You must have a working knowledge and understanding of the maintenance schedules and related specifications. This should include where to access operating requirements, and what the specified operating requirements are of specific assets, including internal maintenance schedules

4. You must have a working knowledge and understanding of the maintenance methods and procedures. This should include how different types of adjustment should be made, how much time is allowed for different types of adjustment, which tools, materials and methods should be used for maintenance, and how to minimise disruption to other activities

5. You must have a working knowledge and understanding of maintenance records and documentation procedures in line with company and manufacturers' procedures

6. You must have a working knowledge and understanding of equipment operating and care and control procedures of the equipment that you use

7. You must have a working knowledge and understanding of maintenance authorisation procedures and limits of your responsibility and authority in line with company and manufacturer's procedures

8. You must have a working knowledge and understanding of your responsibilities with regard to the reporting lines and procedures in your environment

Notes

The following terms have a specific meaning in this unit:

Scope:	1. The level and extent of responsibility extends to the interpretation of a specification, selecting and verifying methods, procedures and materials at his/her discretion to achieve the best possible result in the conditions applying. In some cases, you may still be expected to refer to others for final authorisation, even though you remain responsible for identifying and implementing decisions. 2. The type of equipment to be worked on could include: • Rotating equipment and tools • Protection methods • Electrical distribution systems 3. The type and complexity of adjustments to be made could include: • Tightening of connections • Checking and adjusting movement • Inspection for movement and cleaning 4. The quality standards and accuracy to be achieved are as set down in the work specifications.

Additional Notes:	The Knowledge and Understanding levels expressed indicate the minimum level of knowledge and understanding sufficient to perform your role in a manner that would normally be associated with the minimum acceptable performance of a competent person undertaking your role. The expression ”working knowledge and understanding” indicates you are able to: • Identify and apply relevant information, procedures and practices to your usual role in your expected working environments needing only occasional recourse to reference materials • Describe, in your own words, the principles underlying your working methods. This does not mean the ability to quote “chapter and verse”. Rather you must know what supporting information is available, how and where to find it and from whom to seek further guidance and information to confirm any additional required detail • Interpret and apply the information obtained to your role, your working practice and in your expected working environment

UNIT 26 REMOVE COMPONENTS FROM ELECTRICAL PLANT AND EQUIPMENT (Level 7, 6 Credits)

Unit Overview

This unit is about your competence in removing components from electrical equipment using manufacturer's procedures. You will be required to ensure suitable precautions are taken to prevent the escape of liquids or gases. Following removal, the components should be labelled and stored according to organisational procedures. You will be following your organisation's safe working practices and working within the work permit procedures.

This unit deals with the following:

- Remove components from electrical plant and equipment

During this work you must take account of the relevant worksite operational requirements, procedures and safe working practices AS THEY APPLY TO YOU.

Unit Detail

Performance Criteria

In achieving this unit you must:

1. Work safely at all times, complying with health and safety and other relevant regulations and guidelines including the requirements for isolating and locking off the electrical supply and checking for zero electrical supply to the work area

2. Establish, and where appropriate, mark component orientation for re-assembly

3. Ensure that any stored energy or substances are released safely and correctly

4. Remove the required components using approved tools and techniques

5. Take suitable precautions to prevent damage to components, tools and equipment during removal

6. Check the condition of the removed components and record those that will require replacing

7. Label and store the removed components in an appropriate location

8. Store or discard the removed components in accordance with approved procedures

9. Maintain documentation in accordance with organisational requirements

Knowledge and Understanding

Within the limits of your responsibility you must demonstrate that you know and understand the following:

1. You must have a working knowledge and understanding of what your responsibilities are in respect of Health, Safety and Environment. This should include the limits of your personal responsibility, your legal responsibility for your own health and safety and the health and safety of others

2. You must have a working knowledge of the relevant regulations and the safe working practices and procedures including the requirements for isolating and locking off the electrical supply and checking for zero electrical supply within your work area

3. You must have a working knowledge and understanding of the engineering drawings and related specifications to which you will be expected to work, including technical drawings (component, assembly, general arrangements, isometrics, 1st and 3rd angle projections), method statements and product worksheets, tolerances

4. You must have a working knowledge and understanding of component removal methods and techniques including what the types of isolations and connections are that have to be made, and which tools, equipment and methods can be used to remove specific components from specific plant and equipment

5. You must have a working knowledge and understanding of the identification of component defects that have been removed

6. You must have a working knowledge and understanding of the labelling and storage of components for re-use and what the available marking systems are for specific components and connections

7. You must have a working knowledge and understanding of the disposal of unwanted components and substances, this should include what substances could be released during the removal of components, which risks are associated with the release of substances, and where to access information on the environmental standards, including an appreciation on COSHH, SEPA and company procedures

8. You must have a working knowledge and understanding of the tool and equipment care and control procedures including what your responsibilities are for ensuring the security of tools and equipment that you use

9. You must have a working knowledge and understanding of your responsibilities with regard to the reporting lines and procedures in your working environment

Notes

The following terms have a specific meaning in this unit:

Scope:	1. The level and extent of responsibility will involve you being responsible for ensuring the equipment and work site is safe for others or yourself to work in by following defined procedures. You will be accountable for the integrity of the work site and ensuring the work is recorded in a formal manner. Authorisation for proceeding with the work will be given by authorised signatories within the Permit to Work (PTW) system. 2. The equipment to be worked on includes: • Rotating equipment and tools • Protection methods • Electrical distribution systems 3. The type of components to be removed may be robust or fragile. Robust components are those which are resistant to most forms of damage or disruption during their working lives. Fragile components are those which are easily disrupted or damaged. Damage or disruption could be due to physical, chemical or other forces (e.g. electro-magnetic). Typical robust components could be: • Components of power/lighting transmission • Motors/components of motors • Components of process control systems • Heat exchangers • Components of electrical back-up systems Typical fragile components could be: • Components of electrical circuit protectors • Electrical metering devices • Circuit boards • Safety/protection devices • Components of electrical panels 4. The removal techniques or procedures to be followed should involve components to be removed that may require a sequential series of steps to complete the removal. The component may be difficult to access and may be surrounded by other fragile/valued components and may need specialised tooling requirements. Removal may involve more than one differing technologies and/or involve a significant number of fragile components. The specifications to which a candidate would be expected to work to could include: • Product worksheets • Technical drawings (components, assembly, general arrangement, isometrics) Method statements • Maintenance schedules 5. The removal operations may be complex. Complex removal refers to situations where the components can only be removed by disrupting the surrounding areas e.g. by cutting or de-soldering and/or where removal of one component necessitates removal of other interacting components.

Additional Notes:	The Knowledge and Understanding levels expressed indicate the minimum level of knowledge and understanding sufficient to perform your role in a manner that would normally be associated with the minimum acceptable performance of a competent person undertaking your role. The expression ”working knowledge and understanding” indicates you are able to: • Identify and apply relevant information, procedures and practices to your usual role in your expected working environments needing only occasional recourse to reference materials • Describe, in your own words, the principles underlying your working methods. This does not mean the ability to quote “chapter and verse”. Rather you must know what supporting information is available, how and where to find it and from whom to seek further guidance and information to confirm any additional required detail • Interpret and apply the information obtained to your role, your working practice and in your expected working environment

<u>Assessor Comments/Feedback</u>

UNIT 27 REPLACE COMPONENTS IN ELECTRICAL PLANT AND EQUIPMENT (Level 7, 6 Credits)

Unit Overview

This unit is about your competence in replacing components in electrical plant and equipment. You will be required to ensure the replaced components meet the required specifications, protect them from damage, replace using the appropriate tools and techniques and make any final adjustments. You will be following your organisation's safe working practices and working within the work permit procedures.

This unit deals with the following:

- Replace components in electrical plant and equipment

During this work you must take account of the relevant worksite operational requirements, procedures and safe working practices AS THEY APPLY TO YOU.

Unit Detail

Performance Criteria

In achieving this unit you must:

1. Work safely at all times, complying with health and safety and other relevant regulations and guidelines including the requirements for isolating and locking off the electrical supply and checking for zero electrical supply to the work area

2. Obtain all the required components and ensure that they are in a suitable condition for replacement and fit for purpose

3. Ensure that any replacement components used meet the required specification

4. Take adequate precautions to prevent damage to components, tools and equipment during replacement

5. Replace the components in the correct sequence using appropriate tools and techniques

6. Make any necessary settings or adjustments to the components to ensure they will function correctly

7. Deal promptly and effectively with problems within your control and report those that cannot be solved

8. Maintain documentation in accordance with organisational requirements

Knowledge and Understanding

Within the limits of your responsibility you must demonstrate that you know and understand the following:

1. You must have a working knowledge and understanding of what your responsibilities are in respect of Health, Safety and Environment. This should include the limits of your personal responsibility, your legal responsibility for your own health and safety and the health and safety of others

2. You must have a working knowledge of the relevant regulations and the safe working practices and procedures including the requirements for isolating and locking off the electrical supply and checking for zero electrical supply within your work area

3. You must have a working knowledge and understanding of the engineering drawings and related specifications to which you will be expected to work, including technical drawings (component, assembly, general arrangements, isometrics, 1st and 3rd angle projections), method statements and product worksheets, tolerances

4. You must have a working knowledge and understanding of the component replacement methods and techniques including the types of reconnection that have to be made, and which tools, equipment and methods can be used to replace specific components in specific plant and equipment

5. You must have a working knowledge and understanding of handling equipment, methods and techniques. This could be expected to include manual handling pressure and thermal methods and techniques

6. You must have a working knowledge and understanding of what your responsibilities are for the tool and equipment care and control procedures thereby ensuring the security of tools and equipment that you use. This could be expected to include ingress protection ratings, explosion protection rating, corrosion, portable appliance testing, heating and ventilation and permit systems

7. You must have a working knowledge and understanding of your responsibilities with regard to the reporting lines and procedures in your working environment

Notes

The following terms have a specific meaning in this unit:

Scope:	1. The level and extent of responsibility will involve you being responsible for ensuring the equipment and work site is safe for others or yourself to work in by following defined procedures. You will be accountable for the integrity of the work site and ensuring the work is recorded in a formal manner. Authorisation for proceeding with the work will be given by authorised signatories within the Permit to Work (PTW) system. 2. Equipment to be worked on could include: • Rotating equipment and tools • Protection methods • Electrical distribution systems 3. The type of components to be replaced may be robust or fragile. Robust components are those which are resistant to most forms of damage or disruption during their working lives. Fragile components are those which are easily disrupted or damaged. Damage or disruption could be due to physical, chemical or other forces (e.g. electromagnetic). Typical robust components could be: • Components of power/lighting transmission • Motors/components of motors • Components of process control systems • Heat exchangers • Components of electrical back-up systems Typical fragile components could be: • Components of electrical circuit protectors • Electrical metering devices • Circuit boards • Safety/protection devices • Components of electrical panels 4. The assembly methods and techniques may require a sequential series of steps to complete the replacement. The component may be difficult to access and may be surrounded by other fragile/valued components and may need specialised tooling requirements. The specifications to which a candidate would be expected to work to could include: • Product worksheets • Technical drawings (components, assembly, general arrangement, isometrics). • Method statements • Maintenance schedules 5. The assembly operations may be complex. Complex replacements refers to situations where the components can only be replaced by disrupting the surrounding areas e.g. by cutting or de-soldering and/or where replacement of one component necessitates replacements of other interacting components. 6. The quality standards and accuracy to be achieved are as set down in the work specifications.
Additional Notes:	The Knowledge and Understanding levels expressed indicate the minimum level of knowledge and understanding sufficient to perform your role in a manner that would normally be associated with the minimum acceptable performance of a competent person undertaking your role. The expression ”working knowledge and understanding” indicates you are able to: • Identify and apply relevant information, procedures and practices to your usual

	role in your expected working environments needing only occasional recourse to reference materials • Describe, in your own words, the principles underlying your working methods. This does not mean the ability to quote "chapter and verse". Rather you must know what supporting information is available, how and where to find it and from whom to seek further guidance and information to confirm any additional required detail • Interpret and apply the information obtained to your role, your working practice and in your expected working environment

Assessor Comments/Feedback

UNIT 28 DETERMINE THE FEASIBILITY OF REPAIR OF COMPONENTS FROM ELECTRICAL PLANT AND EQUIPMENT (Level 7, 6 Credits)

Unit Overview

This unit is about your competence in establishing any deviation from the required tolerances and what action has to be taken to bring the component back into service. You will be following your organisation's safe working practices and working within the work permit procedures.

This unit deals with the following:

- Determine the feasibility of repair of components from electrical plant and equipment

During this work you must take account of the relevant worksite operational requirements, procedures and safe working practices AS THEY APPLY TO YOU.

Unit Detail

Performance Criteria

In achieving this unit you must:

1. Work safely at all times, complying with health and safety and other relevant regulations and guidelines including the requirements for isolating and locking off the electrical supply and checking for zero electrical supply to the work area

2. Follow the relevant specifications for the component to be repaired

3. Assess the amount and level of wear or damage to the component and determine what work is required to bring the component back to the specified condition

4. Report on findings and conclusions on the feasibility and cost-effectiveness of repairs

Knowledge and Understanding

Within the limits of your responsibility you must demonstrate that you know and understand the following:

1. You must have a working knowledge and understanding of what your responsibilities are in respect of Health, Safety and Environment. This should include the limits of your personal responsibility, your legal responsibility for your own health and safety and the health and safety of others

2. You must have a working knowledge of the relevant regulations and the safe working practices and procedures including the requirements for isolating and locking off the electrical supply and checking for zero electrical supply within your work area

3. You must have a working knowledge and understanding of the engineering specifications to which you will be expected to work. This could be expected to include product worksheets, method statements, manufacturers' data sheets, maintenance schedules, and technical drawings (components, assembly, general arrangements, isometrics)

4. You must have a working knowledge and understanding of assessing the condition of components for reuse. This could be expected to include electrical integrity

5. You must have a working knowledge and understanding of determining the feasibility and viability of repairs. This could be expected to include electrical integrity

6. You must have a working knowledge and understanding of component replacement methods and techniques. This could be expected to include manufacturers' data, and sources of information

7. You must have a working knowledge and understanding of your responsibilities with regard to the reporting lines and procedures in your working environment

Notes

The following terms have a specific meaning in this unit:

Scope:	1. The level and extent of responsibility will involve you being responsible for ensuring the equipment and work site is safe for others or yourself to work on by following defined procedures. You will be accountable for the integrity of the work site and ensuring the work is recorded in a formal manner. Authorisation for proceeding with the work will be given by authorised signatories within the Permit to Work (PTW) system. 2. The type of components to be repaired may be robust or fragile. Robust components are those which are resistant to most forms of damage or disruption during their working lives. Fragile components are those which are easily disrupted or damaged. Damage or disruption could be due to physical, chemical or other forces (e.g. electromagnetic). Typical robust components could be: • Components of power/lighting transmission • Motors/components of motors • Components of electrical back-up systems • Heat exchangers • Components of process control systems Typical fragile components could be: • Components of electrical circuit protectors • Electrical metering devices • Circuit boards • Safety/protection devices • Components of electrical panels 3. The type of repair to be made requires one or more techniques to be applied depending upon its complexity. The techniques are standard within the sector but may require some modification to achieve the required result. The techniques may relate to one or more technologies depending upon the complexity of the repair. Typical repair techniques could include: • Re-aligning • Re-shaping by material removal • Re/soldering • Bonding • Replacing 4. The nature of repairs to be carried out may be complex. Complex repairs are those which can only be achieved using tools and techniques which have been specially modified in some way to achieve the repair and/or where no pre-defined procedures exist for effecting repair and/or where the repair site is difficult to access.

	5. The quality standards and accuracy to be achieved are as set down in the work specifications.
Additional Notes:	The Knowledge and Understanding levels expressed indicate the minimum level of knowledge and understanding sufficient to perform your role in a manner that would normally be associated with the minimum acceptable performance of a competent person undertaking your role. The expression ”working knowledge and understanding” indicates you are able to: • Identify and apply relevant information, procedures and practices to your usual role in your expected working environments needing only occasional recourse to reference materials • Describe, in your own words, the principles underlying your working methods. This does not mean the ability to quote “chapter and verse”. Rather you must know what supporting information is available, how and where to find it and from whom to seek further guidance and information to confirm any additional required detail
	• Interpret and apply the information obtained to your role, your working practice and in your expected working environment

<u>Assessor Comments/Feedback</u>

UNIT 30 READ AND EXTRACT INFORMATION FROM ELECTRICAL ENGINEERING DRAWINGS AND SPECIFICATIONS (Level 7, 6 Credits)

Unit Overview

This unit is about your competence in extracting information from technical drawings and publications prior to starting electrical maintenance work.

This unit deals with the following:

- Read and extract information from electrical engineering drawings and specifications

During this work you must take account of the relevant worksite operational requirements, procedures and safe working practices AS THEY APPLY TO YOU.

Unit Detail

Performance Criteria

In achieving this unit you must:

1. Use the approved source to obtain the required drawings and specifications
2. Correctly interpret the drawings and specifications
3. Identify, extract and interpret the required information
4. Use the information obtained to ensure that work output meets the specification
5. Deal promptly and effectively with any problems within your control and report those which cannot be solved
6. Report any inaccuracies or discrepancies in drawings and specification

Knowledge and Understanding

Within the limits of your responsibility you must demonstrate that you know and understand the following:

1. You must have a working knowledge and understanding of the information and documentation systems that relate to the maintenance of plant and equipment including the requirements for isolating and locking off the electrical supply and checking for zero electrical supply to the work area
2. You must have a working knowledge and understanding of the currently used types of engineering drawing and specifications. This could include: schematic diagrams, as-built drawings, manufacturers' specifications, processing and instrumentation diagrams (P&ID's)
3. You must have a working knowledge and understanding of the conventions, symbols and abbreviations used within your company. This could include: British Standard, Codes of Practice, company specific, International Standards
4. You must have a working knowledge and understanding of the sources of information available to you
5. You must have a working knowledge and understanding of the identification and selection of data, this should ensure that the data is current and relevant to the location

6. You must have a working knowledge and understanding of the document care and control procedures that are specified by the company

7. You must have a working knowledge and understanding of your responsibilities with regard to the reporting lines and procedures in your working environment

Notes

The following terms have a specific meaning in this unit:

Scope:	1. The level and extent of responsibility you have for ensuring that the information is sourced from the latest version of the drawings and specifications. 2. The type and complexity of drawings and specifications could be: • Pneumatic schematics • Electrical schematics and single line diagrams • Hydraulic schematics 3. The information to be extracted will relate to the maintenance and repair of plant and equipment normally used within the industry.
Additional Notes:	The Knowledge and Understanding levels expressed indicate the minimum level of knowledge and understanding sufficient to perform your role in a manner that would normally be associated with the minimum acceptable performance of a competent person undertaking your role. The expression ”working knowledge and understanding” indicates you are able to: • Identify and apply relevant information, procedures and practices to your usual role in your expected working environments needing only occasional recourse to reference materials • Describe, in your own words, the principles underlying your working methods. This does not mean the ability to quote “chapter and verse”. Rather you must know what supporting information is available, how and where to find it and from whom to seek further guidance and information to confirm any additional required detail • Interpret and apply the information obtained to your role, your working practice and in your expected working environment

Assessor Comments/Feedback

UNIT 31 IDENTIFY AND SUGGEST IMPROVEMENTS TO WORKING PRACTICES AND PROCEDURES ON ELECTRICAL PLANT AND EQUIPMENT (Level 7, 6 Credits)

Unit Overview

This unit is about your competence in identifying and suggesting improvements. You will be required to collect and assess information on current practices and suggest opportunities for improvement by following agreed company procedures.

This unit deals with the following:

- Identify and suggest improvements to working practices and procedures on electrical plant and equipment

During this work you must take account of the relevant worksite operational requirements, procedures and safe working practices AS THEY APPLY TO YOU.

Unit Detail

Performance Criteria

In achieving this unit you must:

1. Take into consideration health and safety and other relevant regulations and guidelines
2. Collect information and feedback on current working practices and procedures including the requirements for isolating and locking off the electrical supply and checking for zero electrical supply to the work area
3. Assess current working practices and procedures against agreed standards
4. Identify opportunities for improving working practices and procedures
5. Make suggestions for improvements that are realistic and which indicate the benefits that might be achieved
6. Ensure that suggested improvements meet organisational requirements
7. Present suggestions for improvements in accordance with organisational procedures
8. Contribute to discussions about work practices and quality

Knowledge and Understanding

Within the limits of your responsibility you must demonstrate that you know and understand the following:

1. You must have a working knowledge and understanding of what your responsibilities are in respect of Health, Safety and Environment. This should include the limits of your personal responsibility, your legal responsibility for your own health and safety and the health and safety of others
2. You must have a working knowledge of the relevant regulations and the safe working practices and procedures required including the requirements for isolating and locking off the electrical supply and checking for zero electrical supply within your work area
3. You must have a working knowledge and understanding of the sources of information that are available from the: company records, company procedures, clients, personal experience, tool box talks

4. You must have a working knowledge and understanding of work improvement methods and techniques that are set by your company

5. You must have a working knowledge and understanding of organisational structure, improvement systems and procedures that are set by your company

6. You must have a working knowledge and understanding of presentation of information as described by the company procedures

7. You must have a working knowledge and understanding of the working relationships, taking account of the organisation structure, the individuals and any external influences

8. You must have a working knowledge and understanding of your responsibilities with regard to the reporting lines and procedures in your working environment

Notes

The following terms have a specific meaning in this unit:

Scope:	1. The engineering activities will be within your own area of expertise and contained within the industry. 2. The complexity of activities will be those processes and systems on which the maintenance activities are being conducted. 3. The type and range of improvements to be identified will involve the changes to existing procedures and processes covering safety, quality, time and cost. 4. The methods for identifying improvements may include use of senses, discussions at tool box talks and own work practices. 5. The presentation techniques will be in line with company procedures.
Additional Notes:	The Knowledge and Understanding levels expressed indicate the minimum level of knowledge and understanding sufficient to perform your role in a manner that would normally be associated with the minimum acceptable performance of a competent person undertaking your role. The expression ”working knowledge and understanding” indicates you are able to: • Identify and apply relevant information, procedures and practices to your usual role in your expected working environments needing only occasional recourse to reference materials • Describe, in your own words, the principles underlying your working methods. This does not mean the ability to quote “chapter and verse”. Rather you must know what supporting information is available, how and where to find it and from whom to seek further guidance and information to confirm any additional required detail • Interpret and apply the information obtained to your role, your working practice and in your expected working environment

Assessor Comments/Feedback

UNIT 32 ESTABLISH THAT AN ELECTRICAL ENGINEERING MAINTENANCE PROCESS HAS BEEN COMPLETED TO SPECIFICATION (Level 7, 6 Credits)

Unit Overview

This unit is about your competence in ensuring that the work has been completed to company and/or manufacturers' standards.

This unit deals with the following:

- Establish that an electrical engineering maintenance process has been completed to specification

During this work you must take account of the relevant worksite operational requirements, procedures and safe working practices AS THEY APPLY TO YOU.

Unit Detail

Performance Criteria

In achieving this unit you must:

1. Work safely at all times, complying with health and safety and other relevant regulations and guidelines
2. Follow and make appropriate use of the specifications for the product or asset being checked
3. Use all the correct tools and inspection equipment and check that they are in usable condition
4. Carry out the checks in an appropriate sequence using approved methods and procedures
5. Identify and assess any defects or variations from the specification and take appropriate action
6. Report completion of compliance activities in line with organisational procedures

Knowledge and Understanding

Within the limits of your responsibility you must demonstrate that you know and understand the following:

1. You must have a working knowledge and understanding of what your responsibilities are in respect of Health, Safety and Environment. This should include the limits of your personal responsibility, your legal responsibility for your own health and safety and the health and safety of others
2. You must have a working knowledge of the relevant regulations and the safe working practices and procedures required within your work area
3. You must have a working knowledge and understanding of the engineering drawings and related specifications to which you will be expected to work, including technical drawings (component, assembly, general arrangements, isometrics, 1st and 3rd angle projections), method statements and product worksheets, tolerances
4. You must have a working knowledge and understanding of how to make an adequate check of compliance against criteria. This could be expected to include equipment and data sheets, commissioning procedures, manufacturers' data and local procedures.
5. You must have a working knowledge and understanding of identification of defects in plant and equipment. This should include what the typical defects and variations are that arise and how to identify them

6. You must have a working knowledge and understanding of quality control systems and documentation procedures. This should include how defects and variations should be dealt with and what factors determine the actions to be taken, and why it is important to maintain records of the checks made and the assessments that result from those checks, what information should be entered on those records and where they should be kept

7. You must have a working knowledge and understanding of the care of inspection equipment and control procedures. This should include what your responsibilities are for ensuring the security of tools and equipment that you use. This could be expected to include ingress protection ratings, explosion protection equipment, corrosion, portable appliance testing, heating and ventilation and permit systems

8. You must have a working knowledge and understanding of your responsibilities with regard to the reporting lines and procedures in your working environment

Notes

The following terms have a specific meaning in this unit:

Scope:	1. The level and extent of responsibility extends to dismantling the asset to a specified degree but you may alter and/or vary the sequence of actions and techniques followed at your discretion to achieve the best possible result in the conditions applying. In some cases, you may still be expected to refer to others for final authorisations, even though you remain responsible for identifying and implementing decisions. 2. The type of products or assets to be checked are electrical plant and equipment related to engineering maintenance work. This could include: • Rotating equipment and tools • Protection methods • Electrical distribution systems 3. The inspection, test and record-keeping procedures to be followed are as set out in internal QA and QC procedures. 4. The aspects, characteristics and complexity of checks to be made are as set down in manufacturer's guidelines and procedures and will include ensuring compliance with relevant international standards, equipment manufacturer specifications, HSE, company procedures, the Electricity at Work regulations and BS 7671. The type of checks made will depend on the engineering process carried out which may include: Dismantling • Assembly • Positioning and installation • Repair of components • Removal and replacement of components • Adjustment • Planned maintenance activities testing 5. The quality standards and accuracy are as set down in work specifications.

Additional Notes:	The Knowledge and Understanding levels expressed indicate the minimum level of knowledge and understanding sufficient to perform your role in a manner that would normally be associated with the minimum acceptable performance of a competent person undertaking your role. The expression ”working knowledge and understanding” indicates you are able to: • Identify and apply relevant information, procedures and practices to your usual role in your expected working environments needing only occasional recourse to reference materials • Describe, in your own words, the principles underlying your working methods. This does not mean the ability to quote “chapter and verse”. Rather you must know what supporting information is available, how and where to find it and from whom to seek further guidance and information to confirm any additional required detail • Interpret and apply the information obtained to your role, your working practice and in your expected working environment

<u>Assessor Comments/Feedback</u>

UNIT 33 TEST THE PERFORMANCE AND CONDITION OF ELECTRICAL PLANT AND EQUIPMENT (Level 7, 6 Credits)

Unit Overview

This unit is about your competence in testing electrical plant and equipment. You will be expected to refer to manufacturer's manuals and follow your company procedures.

This unit deals with the following:

- Test the performance and condition of electrical plant and equipment

During this work you must take account of the relevant installation procedures and safe working practices AS THEY APPLY TO YOU.

Unit Detail

Performance Criteria

In achieving this unit you must:

1. Work safely at all times, complying with health and safety and other relevant regulations and guidelines including the requirements for isolating and locking off the electrical supply and checking for zero electrical supply to the work area

2. Follow the appropriate procedures for use of tools and equipment to carry out the required tests

3. Set up and carry out the tests using the correct procedures and within agreed timescales

4. Record the results of the tests in the appropriate format

5. Review the results and carry out further tests if necessary

Knowledge and Understanding

Within the limits of your responsibility you must demonstrate that you know and understand the following:

1. You must have a working knowledge and understanding of what your responsibilities are in respect of Health, Safety and Environment. This should include the limits of your personal responsibility, your legal responsibility for your own health and safety and the health and safety of others

2. You must have a working knowledge of the relevant regulations and the safe working practices and procedures including the requirements for isolating and locking off the electrical supply and checking for zero electrical supply within your work area

3. You must have a working knowledge and understanding of engineering test specifications. This could be expected to include the latest manufacturers' data sheets and test specifications for specific equipment

4. You must have a working knowledge and understanding of different types of test equipment and their applications.

5. You must have a working knowledge and understanding of the calibration of equipment and authorisation procedures. This should include how to ensure that test equipment is set up and calibrated correctly

6. You must have a working knowledge and understanding of testing methods and procedures. This could be expected to include which tests relate to different aspects of performance and condition specifications, which

procedures are followed in different testing contexts, and what the normal timescales are for conducting tests, including individual company procedures

7. You must have a working knowledge and understanding of analysis methods and techniques. This could be expected to include what data is provided from tests and which methods can verify data, why it is important to be sure about the reliability, validity and completeness of data before analysis begins, and which analysis methods and procedures can be applied to test results

8. You must have a working knowledge and understanding of environmental controls relating to testing, including company HSE policy

9. You must have a working knowledge and understanding of the test reporting documentation and procedures. This should include what the formats are for recording the test procedures and results in line with individual company procedures

10. You must have a working knowledge and understanding of your responsibilities with regard to the reporting lines and procedures in your working environment

Notes

The following terms have a specific meaning in this unit:

Scope:	1. The level and extent of responsibility is limited to working within a detailed specification and following clearly defined procedures. In some cases, you may still be expected to refer to others for final authorisation, even though you remain responsible for identifying and implementing decisions. 2. The typical plant and equipment which are likely to be tested could include: • Rotating equipment and tools • Protection methods • Electrical distribution systems 3. The type of tools and test equipment to be used could include: • Electrical test equipment • Hand tools • Load banks 4. Type and complexity of tests to be carried out are clearly defined and are appropriate for the engineering product. Detailed procedures and specifications define the set up and conduct of the tests and the interpretation of test results. Aspects for which the product is likely to be tested could include: • Operating conditions • Output • Safety limits • Transmission • Rotation • Noise • Resistance • Continuity • Speed • Vibration • Coating/insulation/protection

	5. The quality standards and accuracy to be achieved are as set down in the work specifications.
Additional Notes:	The Knowledge and Understanding levels expressed indicate the minimum level of knowledge and understanding sufficient to perform your role in a manner that would normally be associated with the minimum acceptable performance of a competent person undertaking your role. The expression ”working knowledge and understanding” indicates you are able to: • Identify and apply relevant information, procedures and practices to your usual role in your expected working environments needing only occasional recourse to reference materials • Describe, in your own words, the principles underlying your working methods. This does not mean the ability to quote “chapter and verse”. Rather you must know what supporting information is available, how and where to find it and from whom to seek further guidance and information to confirm any additional required detail • Interpret and apply the information obtained to your role, your working practice and in your expected working environment

Assessor Comments/Feedback

UNIT 34 MONITOR THE PERFORMANCE AND CONDITION OF ELECTRICAL PLANT AND EQUIPMENT (Level 7, 7 Credits)

Unit Overview

This unit is about your competence in completing performance condition monitoring on operational and static electrical plant and equipment. You will be required to set-up, monitor and record the results in accordance with company procedures. You will be following your organisation's safe working practices at all times and working within the work permit procedures.

This unit deals with the following:

- Monitor the performance and condition of electrical plant and equipment

During this work you must take account of the relevant installation procedures and safe working practices AS THEY APPLY TO YOU.

Unit Detail

Performance Criteria

In achieving this unit you must:

1. Work safely at all times, complying with health and safety and other relevant regulations and guidelines
2. Correctly set up and check/calibrate the equipment required for the monitoring being carried out
3. Carry out the monitoring activities effectively with minimum disruption to normal activities
4. Record and review the outcomes and take appropriate actions

Knowledge and Understanding

Within the limits of your responsibility you must demonstrate that you know and understand the following:

1. You must have a working knowledge and understanding of what your responsibilities are in respect of Health, Safety and Environment. This should include the limits of your personal responsibility, your legal responsibility for your own health and safety and the health and safety of others
2. You must have a working knowledge of the relevant regulations and the safe working practices and procedures including the requirements for isolating and locking off the electrical supply and checking for zero electrical supply within your work area
3. You must have a working knowledge and understanding of the performance requirements of plant and equipment. This could be expected to include manufacturers' and company specifications on performance requirements
4. You must have a working knowledge and understanding of the monitoring methods and procedures for plant and equipment and which data is required to make decisions
5. You must have a working knowledge and understanding of the importance of the need for equipment calibration and authorisation procedures including ensuring that the monitoring equipment is set up and calibrated correctly
6. You must have a working knowledge and understanding of monitoring equipment setting, operating and care and control procedures, the types of disruption which can occur during monitoring, and how to minimise different types of disruption

7. You must have a working knowledge and understanding of the formats for recording and monitoring results in line with company procedures

8. You must have a working knowledge and understanding of your responsibilities with regard to the reporting lines and procedures in your working environment

Notes

The following terms have a specific meaning in this unit:

Scope:	1. The level and extent of responsibility extends to selecting and modifying methods at your discretion to optimise the effectiveness of the monitoring and assessment undertaken in the conditions applying. In some cases, you may still be expected to refer to others for final authorisations, even though you remain responsible for identifying and implementing decisions. 2. The type of assets to be monitored involve multiple technologies or are of a single technology interacting with other plant and equipment in a dynamic manner. Typical assets could be: • Rotating equipment and tools • Protection methods • Electrical distribution systems 3. The monitoring methods and equipment to be used may need to be customised to suit the conditions applying. Typical monitoring methods could include: • Inspection of assets • Taking instrument readings • Sampling/analysing/reviewing outputs • Checking documentary information 4. The monitoring conditions or operating environment may be normal operating environments which are complex by virtue of access problems and/or the likelihood of disruption to the monitoring process. Conditions may also be abnormal as a result of unusual hazards being present or non-standard demands placed on the operation of the assets. 5. The complexity of monitoring to be carried out would include motor tests as advised by company procedures, including: • Temperature monitoring • Vibration • Current readings • Run down and up time

Additional Notes:	The Knowledge and Understanding levels expressed indicate the minimum level of knowledge and understanding sufficient to perform your role in a manner that would normally be associated with the minimum acceptable performance of a competent person undertaking your role. The expression ”working knowledge and understanding” indicates you are able to: • Identify and apply relevant information, procedures and practices to your usual role in your expected working environments needing only occasional recourse to reference materials • Describe, in your own words, the principles underlying your working methods. This does not mean the ability to quote “chapter and verse”. Rather you must know what supporting information is available, how and where to find it and from whom to seek further guidance and information to confirm any additional required detail • Interpret and apply the information obtained to your role, your working practice and in your expected working environment

<u>Assessor Comments/Feedback</u>

UNIT 35 ASSESS THE PERFORMANCE AND CONDITION OF ELECTRICAL PLANT AND EQUIPMENT (Level 7, 7 Credits)

Unit Overview

This unit is about your competence in assessing the performance and condition of electrical plant and equipment using all available sources of information. You will be required to check that you have all the necessary data, complete the assessment and analyse the results by comparing with norms and previous records. To record the results you will follow company procedures and your organisation's safe working practices at all times and work within the work permit procedures.

This unit deals with the following:

- Assess the performance and condition of electrical plant and equipment

During this work you must take account of the relevant installation procedures and safe working practices AS THEY APPLY TO YOU.

Unit Detail

Performance Criteria

In achieving this unit you must:

1. Work safely at all times, complying with health and safety and other relevant regulations and guidelines including the requirements for isolating and locking off the electrical supply and checking for zero electrical supply to the work area
2. Ensure that you have the necessary test data on which to conduct the assessment
3. Carry out the assessment using all relevant data and valid methods
4. Check that the assessment provides clear and accurate information
5. Compare current performances and condition data with that from previous assessments
6. Identify and report the implications arising from the assessments
7. Record the results of the assessments in the appropriate format

Knowledge and Understanding

Within the limits of your responsibility you must demonstrate that you know and understand the following:

1. You must have a working knowledge and understanding of what your responsibilities are in respect of Health, Safety and Environment. This should include the limits of your personal responsibility, your legal responsibility for your own health and safety and the health and safety of others
2. You must have a working knowledge of the relevant regulations and the safe working practices and procedures including the requirements for isolating and locking off the electrical supply and checking for zero electrical supply within your work area

3. You must have a working knowledge and understanding of equipment operating and test specifications including manufacturers' and company specifications

4. You must have a working knowledge and understanding of the equipment monitoring methods and procedures including the types of data provided from monitoring, which methods can verify data and why it is important to do so

5. You must have a working knowledge and understanding of the assessment methods and techniques for specific data and plant and equipment, and the factors that have to be taken into account when assessing performance of specific plant and equipment

6. You must have a working knowledge and understanding of the reporting documentation and control procedures including how to present results of the assessment, and who should receive the results and implications of assessments

7. You must have a working knowledge and understanding of your responsibilities with regard to the reporting lines and procedures in your working environment

Notes

The following terms have a specific meaning in this unit:

Scope:	1. The level and extent of responsibility extends to selecting and modifying methods at your discretion to optimise the effectiveness of the monitoring and assessment undertaken in the conditions applying. In some cases, you may still be expected to refer to others for final authorisations, even though you remain responsible for identifying and implementing decisions. 2. The types of assets to be assessed involve multiple technologies or are of a single technology interacting with other plant and equipment in a dynamic manner. Typical assets could be: • Rotating equipment and tools • Protection methods • Electrical distribution systems 3. The type of data to be analysed covers: • Vibration • Temperature • Current • Voltage 4. The analysis methods to be used covers: • Comparison to manufacturers' specification • Historical • Maintenance records • Trend analysis 5. The complexity of monitoring information to be used could include motor, plant or equipment tests as advised by company procedures. The information gained will vary in complexity and depend on the assessment being carried out. The information gathered will be used in various ways as dictated by the test or company procedures.

Additional Notes:	The Knowledge and Understanding levels expressed indicate the minimum level of knowledge and understanding sufficient to perform your role in a manner that would normally be associated with the minimum acceptable performance of a competent person undertaking your role. The expression ”working knowledge and understanding” indicates you are able to: • Identify and apply relevant information, procedures and practices to your usual role in your expected working environments needing only occasional recourse to reference materials • Describe, in your own words, the principles underlying your working methods. This does not mean the ability to quote “chapter and verse”. Rather you must know what supporting information is available, how and where to find it and from whom to seek further guidance and information to confirm any additional required detail • Interpret and apply the information obtained to your role, your working practice and in your expected working environment

Assessor Comments/Feedback

UNIT 36 INSPECT ELECTRICAL PLANT AND EQUIPMENT (Level 7, 6 Credits)

Unit Overview

This unit is about your competence in completing checks on electrical plant and equipment. You will be required to complete the checks following your company procedures. The checks may be routine or nonroutine in nature. To record the results you will follow company procedures and your organisation's safe working practices at all times and work within the work permit procedures.

This unit deals with the following:

- Inspect electrical plant and equipment

During this work you must take account of the relevant installation procedures and safe working practices AS THEY APPLY TO YOU.

Unit Detail

Performance Criteria

In achieving this unit you must:

1. Work safely at all times, complying with health and safety and other relevant regulations and guidelines
2. Follow the correct specification for the product or equipment being inspected including the requirements for isolating and locking off the electrical supply and checking for zero electrical supply to the work area
3. Use the correct equipment to carry out the inspection
4. Identify and confirm the inspection checks to be made and acceptance criteria to be used
5. Carry out all required inspections as specified
6. Identify any defects or variations from the specification
7. Record the results of the inspection in the appropriate format
8. Deal promptly and effectively with problems within your control and report those that cannot be solved

Knowledge and Understanding

Within the limits of your responsibility you must demonstrate that you know and understand the following:

1. You must have a working knowledge and understanding of what your responsibilities are in respect of Health, Safety and Environment. This should include the limits of your personal responsibility, your legal responsibility for your own health and safety and the health and safety of others
2. You must have a working knowledge of the relevant regulations and the safe working practices and procedures including the requirements for isolating and locking off the electrical supply and checking for zero electrical supply within your work area
3. You must have a working knowledge and understanding of the engineering drawings and related specifications to which you will be expected to work. This will include technical drawings (component, assembly, general arrangements, isometrics, 1st and 3rd angle projections) method statements and product worksheets, tolerances

4. You must have a working knowledge and understanding of the inspection methods and techniques that are approved by the company

5. You must have a working knowledge and understanding of calibration of equipment and authorisation procedures that are approved by the company. This should include the procedure for recertification and how to interpret the calibration certificate

6. You must have a working knowledge and understanding of the inspection equipment care and control procedures that are approved by the company. This should include storage, both in situ and transit, and the checking of calibration certificates

7. You must have a working knowledge and understanding for the identification of defects in products, equipment or systems. This should include what the typical defects are that arise and how to identify them, typical examples are: weathering, wear and tear, corrosion

8. You must have a working knowledge and understanding of the quality control systems and documentation procedures This should include how defects and variations should be dealt with and what factors determine the actions to be taken, and why it is important to maintain records of the checks made and the assessments that result from those checks, what information should be entered on those records and where they should be kept

9. You must have a working knowledge and understanding of the reporting lines and procedures in your working environment

Notes

The following terms have a specific meaning in this unit:

Scope:	1. The level and extent of responsibility extends to selecting and modifying methods at your discretion to optimise the effectiveness of the monitoring and assessment undertaken in the conditions applying. In some cases, you may still be expected to refer to others for final authorisations, even though you remain responsible for identifying and implementing decisions. 2. The type of products to be inspected involves multiple technologies or is of a single technology interacting with other assets in a dynamic manner. Typical assets could be: • Rotating equipment and tools • Protection methods • Electrical distribution systems 3. The aspects, characteristics and complexity of checks are as set down in manufacturer's guidelines and procedures and will include ensuring compliance with relevant international standards, equipment manufacturer specifications, HSE, company procedures, the Electricity at Work regulations and BS 7671. The type of checks made will depend on the engineering process carried out which may include: Dismantling • Assembly • Positioning and installation • Repair of components • Removal and replacement of components • Adjustment • Planned maintenance activities testing 4. The inspection methods and techniques and type of equipment to be used are as set out in internal QA and QC procedures. 5. The quality standards and accuracy to be achieved are as set down in work specifications.
Additional Notes:	The Knowledge and Understanding levels expressed indicate the minimum level of knowledge and understanding sufficient to perform your role in a manner that would normally be associated with the minimum acceptable performance of a competent person undertaking your role. The expression "working knowledge and understanding" indicates you are able to: • Identify and apply relevant information, procedures and practices to your usual role in your expected working environments needing only occasional recourse to reference materials • Describe, in your own words, the principles underlying your working methods. This does not mean the ability to quote "chapter and verse". Rather you must know what supporting information is available, how and where to find it and from whom to seek further guidance and information to confirm any additional required detail • Interpret and apply the information obtained to your role, your working practice and in your expected working environment

Assessor Comments/Feedback

UNIT 29 INTERPRET DETAILED ELECTRICAL INFORMATION FROM TECHNICAL SOURCES (Level 7, 4 Credits)

Unit Overview

This unit is about your competence in interpreting information from drawings, diagrams and technical manuals. You will be required to ensure the information is accurate, up to date and contains all the data. You will also be required to identify and deal with any problems that may arise.

This unit deals with the following:

- Interpret detailed electrical information from technical sources

During this work you must take account of the relevant worksite operational requirements, procedures and safe working practices AS THEY APPLY TO YOU.

Unit Detail

Performance Criteria

In achieving this unit you must:

1. Use up-to-date, accurate and relevant information on technical requirements
2. Ensure that the information contains all essential data
3. Identify and interpret the required details
4. Identify and deal promptly and effectively with any problems occurring with the requirements and their interpretation

Knowledge and Understanding

Within the limits of your responsibility you must demonstrate that you know and understand the following:

1. You must have a working knowledge and understanding of the information and document systems that relate to the maintenance of electrical plant and equipment
2. You must have a working knowledge and understanding of the document care and control procedures in line with the company and manufacturers' procedures
3. You must have a working knowledge and understanding of the specification structure and content
4. You must have a working knowledge and understanding of the conventions, symbols and abbreviations as used within the industry. This could include: British Standards, Codes of Practice, International Standards, company specific, manufacturer specific
5. You must have a working knowledge and understanding of the standards and regulations that relate to the maintenance of electrical plant and equipment including the requirements for isolating and locking off the electrical supply and checking for zero electrical supply to the work area
6. You must have a working knowledge and understanding of your responsibilities with regard to the reporting lines and procedures in your environment

Notes

The following terms have a specific meaning in this unit:

Scope:	1. The level and extent of responsibility will involve you being responsible for ensuring that the source information is obtained from the latest version. In some cases you may be expected to refer to others when checking the data even though you remain responsible for the final product. 2. The complexity of technical detail could include: Pneumatic schematics • Electrical schematics and single line diagrams • Hydraulic schematics 3. The technical problems and issues will vary from solving simple single line diagrams to more complex drawings and specifications provided by the manufacturer.
Additional Notes:	The Knowledge and Understanding levels expressed indicate the minimum level of knowledge and understanding sufficient to perform your role in a manner that would normally be associated with the minimum acceptable performance of a competent person undertaking your role. The expression ”working knowledge and understanding” indicates you are able to: • Identify and apply relevant information, procedures and practices to your usual role in your expected working environments needing only occasional recourse to reference materials • Describe, in your own words, the principles underlying your working methods. This does not mean the ability to quote “chapter and verse”. Rather you must know what supporting information is available, how and where to find it and from whom to seek further guidance and information to confirm any additional required detail • Interpret and apply the information obtained to your role, your working practice and in your expected working environment

Assessor Comments/Feedback

NOTES

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