

NOCC-A21 Electrician: Competence Package

Relevant Occupation/trade title: Electrician				SAQA ID: 91761	
Learning Area 10: Install, maintain and troubleshoot electrical transformers and associated controls				Total Hours:	72
Learning Project 2: Maintain and troubleshoot low voltage (single phase) transformers				Total Hours:	8
Requisite learning areas/projects to be in place (Pre-requisite and co-requisite):		<ul style="list-style-type: none">• Phase 1 completed• LA 8 LP 3• LA 9 LP 1			
Learning project description: Apprentices learn to maintain and troubleshoot low voltage (single phase) transformers.					
Activity phase	Practical Skills Modules Content	Underpinning Knowledge Module Content	Work Experience Module Content	Didactical-methodological advice	Learning materials/Tools and Equipment
Reference to QCTO Curriculum	PM05-PS04	KM01-KT01, KM07-KT03	WM-None		
Planning/ Preparation	<p><u>Provide access to (Given):</u> Maintenance schedule and pre-wired single phase transformer installation, faulty single phase transformers, electrical wiring diagram, materials and equipment as identified in last column;</p> <p>Apprentices must be able to do/perform the following (hard and soft) skills:</p> <ul style="list-style-type: none">• Read and interpret the maintenance schedule• Read and interpret electrical diagram• Perform a risk assessment on the task• Plan maintenance tasks• Identify the tools and materials required• Identify obstacles and necessary precautions in relation to task• Plan sequence of tasks	<p><u>Knowledge of:</u></p> <ul style="list-style-type: none">• Maintenance procedures on single phase transformers• Specific safety procedures related to maintenance of single phase transformers• Statutory requirements as per work conducted• Common faults and their causes on single phase transformers• Basic troubleshooting techniques on single phase transformers	<p><u>Under supervision:</u></p> <ul style="list-style-type: none">• Maintain single phase transformers (in a variety of contexts) as per maintenance schedule• Perform fault finding and basic trouble shooting of single phase transformers• Replace faulty components on transformers• Test faulty single phase transformers and document identified faults	Lecture, presentations DVDs, audio-visual Demonstrations Practical applications and discussions	<p>Print materials, electronic files, software applications incl.:</p> <ul style="list-style-type: none">• Training manuals for trainers and apprentices incl. multimedia software• Set of presentation aids (videos, slides) for overhead or LED/LCD projectors• Statutory requirements:• SANS 10142-Part1• Municipal by-laws• Maintenance schedule <p>Tools, equipment and materials incl.: Range of materials and tools to be covered (minimum):</p> <ul style="list-style-type: none">• Vacuum cleaner• Paintbrush• Electrical hand tools standard toolbox• Measuring instruments
Implementation /	<p><u>Maintenance</u></p> <ul style="list-style-type: none">• Transport tools safely to site				

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Execution Repair	<ul style="list-style-type: none"> Perform maintenance tasks Fit replacement spares where necessary Test installation (power on) <p>Faulty single phase transformers:</p> <ul style="list-style-type: none"> Informed discussion of possible causes of failure Perform testing on faulty single phase transformers (power off) Identify the fault based on testing 				<p>Materials:</p> <ul style="list-style-type: none"> Pre-wired single phase transformer installation Faulty single phase transformers <u>Replacement spares where applicable:</u> <ul style="list-style-type: none"> Lugs Cable ties Conductors Cables Slotted trunking Metering instruments (voltmeter, ammeter) Labelling <p>PPE:</p> <ul style="list-style-type: none"> Hard hat Safety boots Gloves Safety glasses
Evaluation/ Documentation	<ul style="list-style-type: none"> Document and report faults Clean work area after completion of task in accordance with work site procedures and housekeeping standards Dispose of waste materials in accordance with safety standards and environmental requirements Complete necessary documentation and submit to designated personnel. 				
Total	Hours: 8				
Specialisation additions					
Assessment guidance					
<ul style="list-style-type: none"> Self assessment Group assessment Theory test <p>Criteria for assessment:</p> <ul style="list-style-type: none"> Planning for task Interpretation of maintenance schedule and diagram Identification of risks Maintenance tasks performed as required Transformer faults correctly identified and documented Use of appropriate equipment and tools Clean worksite after completion of task and equipment returned safely to store 					