

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 4: Install and wire auto-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 10 LP 1-2			
Learning project description: Apprentices install and wire auto-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	KM07-KT03	WM-None		
Planning/Preparation	<p><u>Provide access to (Given):</u> Scenario with a load (VA rating and voltage), single and three phase auto-transformers, electrical wiring diagram, materials and equipment as identified in last column;</p> <p><u>Apprentices must be able to do/perform the following (hard and soft) skills:</u></p> <ul style="list-style-type: none">• Read and interpret the scenario given• Select correct single and or three phase auto-transformer• Select correct configuration• Identify transformer protection• Read and interpret electrical diagram• Perform a risk assessment on the task• Plan positioning of transformer(s)• Plan wiring as per diagram• Identify the tools and materials required• Identify obstacles and necessary precautions in relation to task	<p><u>Knowledge of:</u></p> <ul style="list-style-type: none">• Theory of auto-transformers (function and operation, safety)• Types and application of auto-transformers• Configurations of auto-transformers• Auto-transformer protection• Specific safety procedures related to auto-transformers• Statutory requirements as per work conducted• Labelling of auto-transformers	<p><u>Under supervision:</u></p> <ul style="list-style-type: none">• Select, install and wire single and three phase auto-transformers (where applicable)• Have structured discussion on the selection of a auto-transformer for specific scenarios	Lecture, presentations DVDs, audio-visual Demonstrations Practical applications	<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 <p>Tools, equipment and materials incl.: Range of materials and tools to be covered (minimum):</p> <ul style="list-style-type: none">• Electrical hand tools standard toolbox• Associated Powertools• Measuring instruments

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	<ul style="list-style-type: none">Plan sequence of tasks				Materials: <ul style="list-style-type: none">Surface to mount transformerSingle and three phase auto-transformersLugsCable tiesConductorsCablesSlotted trunkingMetering instruments (voltmeter, ammeter)Labelling PPE: <ul style="list-style-type: none">Hard hatSafety bootsGlovesSafety glasses
Implementation/ Execution Repair	<ul style="list-style-type: none">Transport materials and tools safely to siteFit auto-transformer(s) as per diagramInsert slotted trunking where applicableComplete wiring of auto-transformer(s)Fit lugs where applicableLabel auto-transformer(s) according to drawingTest installation (power on)				
Evaluation/ Documentation	<ul style="list-style-type: none">Clean work area after completion of task in accordance with work site procedures and housekeeping standardsDispose of waste materials in accordance with safety standards and environmental requirementsComplete necessary documentation and submit to designated personnel.				
Total	Hours: 8				
Specialisation additions					
Assessment guidance					
<ul style="list-style-type: none">Self assessmentGroup assessmentTheory test Criteria for assessment: <ul style="list-style-type: none">Planning for taskInterpretation of electrical diagramIdentification of risksCorrect selection, positioning and operation of auto-transformer(s)Auto-Transformer(s) wired as per given diagram and labelled accordinglyAuto-Transformers configured as requiredAuto-Transformer protection appliedUse of appropriate equipment and toolsClean worksite after completion of task and equipment returned safely to store					