

NOCC-A21 Electrician: Competence Package

Relevant Occupation/trade title: Electrician				SAQA ID: 91761	
Learning Area 12: Identify, construct and troubleshoot basic electronic circuits				Total Hours:	128
Learning Project 4: Troubleshoot electronic circuits				Total Hours:	16
Requisite learning areas/projects to be in place (Pre-requisite and co-requisite):		• LA12, LP1-3			
Learning project description: Apprentices learn to troubleshoot electronic circuits.					
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	PM-01-PS03, PM-01-PS04, PM08-PS01-05,	KM-03-KT02 KM09-KT01	WM-None		
Planning/ Preparation	<p><u>Provide access to (Given):</u> Simulated faults/faulty components on electronic circuits, datasheets, electronic drawings, 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 electronic drawing• Perform a risk assessment on the task• Identify the tools,testing instruments and materials required• Plan sequence of tasks	<p><u>Knowledge of:</u></p> <ul style="list-style-type: none">• Common faults on electronic circuits• Trouble shooting techniques• Statutory requirements as per work conducted	<p><u>Under supervision:</u> <i>If the workplace allows for this exposure:</i></p> <ul style="list-style-type: none">• Troubleshoot electronic circuits (where applicable)	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• Datasheets or access to datasheets <p>Tools, equipment and materials incl.:</p> <ul style="list-style-type: none">• Soldering station• Solder sucker• Helping hands• Magnifying glass• Oscilloscope• Signal generator/power supply• Measuring instruments• Standard electronic tools
Implementation/ Execution <u>Repair</u>	<ul style="list-style-type: none">• Connect circuit to power supply• Identify the fault/faulty component on electronic circuit with the use of measuring instruments				

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	<ul style="list-style-type: none"> • Replace/repair fault • Test the completed electronic circuit with Oscilloscope 				Materials: <ul style="list-style-type: none"> • Existing electronic circuits with simulated faults / faulty components • Resin/solder • Colour chart • <u>Electronic component spares:</u> <ul style="list-style-type: none"> • Resistor • Capacitor • Inductors • Semi-conductor devices • Diodes PPE: <ul style="list-style-type: none"> • Safety boots • Safety glasses
Evaluation/Documentation	<ul style="list-style-type: none"> • Document test results • Record fault and performed repair • Clean work area after completion of task in accordance with work site procedures and housekeeping standards 				
Total	Hours: 16				
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"> • Correct identification and selection of electronic component to replace faulty component • Method and neatness of soldering (if applicable) • Correct testing method and use of instruments • Functionality of circuit • Documentation of readings and record of fault • Clean worksite after completion of task and equipment returned safely to store 					