

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 3: Construct basic electronic circuits				Total Hours:	40
Requisite learning areas/projects to be in place (Pre-requisite and co-requisite):		• LA12, LP1-2			
Learning project description: Apprentices learn to construct basic 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, PM01-PS04	KM-03-KT02	WM-None		
Planning/Preparation	<p><b><u>Provide access to (Given):</u></b> Veroboards, electronic components, datasheets, electronic drawings, materials and equipment as identified in last column;</p> <p><b><u>Apprentices must be able to do/perform the following (hard and soft) skills:</u></b></p> <ul style="list-style-type: none"><li>Read and interpret the electronic drawing</li><li>Perform a risk assessment on the task</li><li>Select appropriate components according to the electronic drawing</li><li>Plan layout of components</li><li>Identify the tools and materials required</li><li>Plan sequence of tasks</li></ul>	<p><b><u>Knowledge of:</u></b></p> <ul style="list-style-type: none"><li>Planning of the layout of a veroboard</li><li>Sensitivity of electronic components (static)</li><li>Soldering techniques on veroboards</li><li>Use of oscilloscope</li><li>Use of signal generator</li><li>Safety precautions when working with electronic circuits</li><li>Statutory requirements as per work conducted</li></ul>	<p><b><u>Under supervision:</u></b> <i>If the workplace allows for this exposure:</i></p> <ul style="list-style-type: none"><li>Solder electronic components (where applicable)</li></ul>	Lecture, presentations DVDs, audio-visual Demonstrations Practical applications	<p><b>Print materials, electronic files, software applications incl.:</b></p> <ul style="list-style-type: none"><li>Training manuals for trainers and apprentices incl. multimedia software</li><li>Set of presentation aids (videos, slides) for overhead or LED/LCD projectors</li><li>Statutory requirements:</li><li>SANS 10142-Part1</li><li>Municipal by-laws</li><li>Datasheets or access to datasheets</li></ul> <p><b>Tools, equipment and materials incl.:</b></p> <ul style="list-style-type: none"><li>Soldering station</li><li>Solder sucker</li><li>Helping hands</li><li>Magnifying glass</li><li>Oscilloscope</li><li>Signal generator/power</li></ul>
Implementation/Execution <u>Repair</u>	<ul style="list-style-type: none"><li>Prepare and mount components on veroboard</li><li>Solder components according</li></ul>				

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	<ul style="list-style-type: none"> <li>to requirements</li> <li>Test the completed electronic circuit with Oscilloscope</li> </ul>				<ul style="list-style-type: none"> <li>supply</li> <li>Measuring instruments</li> <li>Standard electronic tools</li> </ul>
<b>Evaluation/ Documentation</b>	<ul style="list-style-type: none"> <li>Document test results and calculate where necessary</li> <li>Clean work area after completion of task in accordance with work site procedures and housekeeping standards</li> </ul>				<p><b>Materials:</b></p> <ul style="list-style-type: none"> <li>Veroboards</li> <li>Resin/solder</li> <li><u>Electronic components:</u> <ul style="list-style-type: none"> <li>Resistor</li> <li>Capacitor</li> <li>Inductors</li> <li>Semi-conductor devices</li> <li>Diodes</li> <li>Colour chart</li> </ul> </li> </ul> <p><b>PPE:</b></p> <ul style="list-style-type: none"> <li>Safety boots</li> <li>Safety glasses</li> </ul>
<b>Total</b>	Hours: 40				
<b>Specialisation additions</b>					
<b>Assessment guidance</b> <ul style="list-style-type: none"> <li>Self assessment</li> <li>Group assessment</li> <li>Theory test</li> </ul> <p><b>Criteria for assessment:</b></p> <ul style="list-style-type: none"> <li>Correct identification and selection of electronic components</li> <li>Neatness of layout</li> <li>Method and neatness of soldering</li> <li>Correct testing method and use of instruments</li> <li>Functionality of circuit</li> <li>Documentation of readings and calculations</li> <li>Clean worksite after completion of task and equipment returned safely to store</li> </ul>					