

NOCC-A21 Electrician: Competence Package

Relevant Occupation/trade title: Electrician				SAQA ID: 91761	
Learning Area 13: Install, maintain, troubleshoot and upgrade process control systems				Total Hours:	56
Learning Project 2: Install and wire PLCs and input/output field devices				Total Hours:	8
Requisite learning areas/projects to be in place (Pre-requisite and co-requisite):		<ul style="list-style-type: none"> LA13 LP 1 			
Learning project description: Apprentices install and wire PLCs and input/output field devices.					
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-None	KM07-KT05	WM-None		
Planning/Preparation	<p><u>Provide access to (Given):</u> Pre-programmed PLC and diagram from LA 12 LP1, 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 diagram Perform a risk assessment on the task Select tools and equipment needed for task Plan positioning of PLC and input and output devices Plan wiring as per diagram Plan sequence of tasks 	<p><u>Knowledge of:</u></p> <ul style="list-style-type: none"> Wiring of circuits Specific safety procedures related to PLCs and Input/Output devices Statutory requirements as per work conducted 	<p><u>Under supervision:</u> <i>If workplace allows for this exposure:</i></p> <ul style="list-style-type: none"> Read and interpret diagrams of PLCs (in a variety of contexts) Mount and wire PLCs and input and output devices 	<p>Lecture, presentations DVDs, audio-visual Demonstrations Practical applications</p>	<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.:</p> <ul style="list-style-type: none"> Electrical hand tools standard toolbox Associated power tools Measuring instruments
Implementation/Execution Repair	<ul style="list-style-type: none"> Mount PLC as per diagram Mount input and output devices 				

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	<ul style="list-style-type: none"> • Install conductors to input and output devices • Test operation of PLC and monitor on PC • Rectify wiring faults if not functioning correctly • Test programmed PLC until functioning 				<p>Materials:</p> <ul style="list-style-type: none"> • Surface to mount PLC and Input/Output devices • Pre-programmed PLC • Input and Output Devices • Computer or handheld programmer <ul style="list-style-type: none"> • Lugs • Cable ties • Conductors • Cables • Slotted trunking • Labelling <p>PPE:</p> <ul style="list-style-type: none"> • Safety overall • Safety boots
Evaluation/ Documentation/ Housekeeping	<ul style="list-style-type: none"> • Document test results • Clean work area after completion of task in accordance with work site procedures and housekeeping standards 				
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"> • Interpretation of diagram • Equipment mounted and wired correctly • Functionality of circuit • Clean worksite after completion of task and equipment returned safely to store 					