

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 1: Gain an overview of Programmable Logic Controllers (PLCs) and carry out programming				Total Hours:	40
Requisite learning areas/projects to be in place (Pre-requisite and co-requisite):		<ul style="list-style-type: none"> Phase 2 completed 			
Learning project description: Apprentices gain an overview of Programmable Logic Controllers (PLCs) and carry out programming.					
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>Provide access to (Given): Scenario such as traffic light, motor control, 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 scenario given Design circuit to given scenario using programme language Perform a risk assessment on the task Plan wiring as per diagram 	<p>Knowledge of:</p> <ul style="list-style-type: none"> Theory and function of PLCs Input and output devices Programming languages in connection with PLCs Designing circuits using programming languages Specific safety procedures related to PLCs Statutory requirements as per work conducted 	<p>Under supervision: <i>If workplace allows for this exposure:</i></p> <ul style="list-style-type: none"> Read and interpret programmes in PLCs (in a variety of contexts) Have structured discussion on programming of PLCs 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</p> <p>Materials:</p>
Implementation/Execution Repair	<ul style="list-style-type: none"> Test programmed PLC in simulation Rectify programme if not functioning correctly Test programmed PLC again 				

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Evaluation/ Documentation/ Housekeeping	<ul style="list-style-type: none"> • Document test results • Check drawing and programme for correctness • Clean work area after completion of task in accordance with work site procedures and housekeeping standards 				<ul style="list-style-type: none"> • PLC • Input and Output Devices • Computer or handheld programmer <p>PPE:</p> <ul style="list-style-type: none"> • Safety overall • Safety boots
Total	Hours: 40				
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 scenario • Circuit design • Functionality of programme • Clean worksite after completion of task and equipment returned safely to store 					