

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 3: Maintain and troubleshoot PLCs and input/output (I/O) 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 1-2 			
Learning project description:					
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): Simulated faults and/or faulty components on input/output equipment, materials and equipment as identified in last column;</p> <p>Apprentices must do/perform the following (hard and soft skills):</p> <ul style="list-style-type: none"> Read and interpret the diagram Perform a risk assessment on the task Systematically identify faults Select tools and equipment needed for task Plan sequence of tasks 	<p>Knowledge of:</p> <ul style="list-style-type: none"> Common faults on PLCs and input/output devices Fault finding procedures Specific safety procedures related to PLCs and Input/Output device maintenance and troubleshooting Statutory requirements as per work conducted 	<p>Under supervision: <i>If workplace allows for this exposure:</i></p> <ul style="list-style-type: none"> Troubleshoot PLCs and input/output devices (in a variety of contexts) Replace faulty components on input/output devices 	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.:</p> <ul style="list-style-type: none"> Electrical hand tools standard toolbox Associated Powertools Measuring instruments
Implementation/Execution Repair	<ul style="list-style-type: none"> Rectify identified fault or replace faulty component Test operation of PLC Rectify any further faults if 				

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Evaluation/ Documentation	not functioning correctly <ul style="list-style-type: none"> • Document faults and performed repair • Clean work area after completion of task in accordance with work site procedures and housekeeping standards 				Materials: <ul style="list-style-type: none"> • Pre-programmed PLC and Input/Output devices with simulated faults and/or faulty components • Computer or handheld programmer • <u>Replacement spares where applicable:</u> <ul style="list-style-type: none"> • Input/output devices • Lugs • Conductors • Cables PPE: <ul style="list-style-type: none"> • Safety overall • Safety boots
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 • Faults correctly identified and repaired • Functionality of circuit • Clean worksite after completion of task and equipment returned safely to store 					