

NOCC-A21 Electrician: Competence Package

Relevant Occupation/trade title: Electrician				SAQA ID: 91761	
Learning Area 7: Install wire, test and maintain electrical motors and associated control systems - Basic				Total Hours:	56
Learning Project 4: Install and wire three phase alternating current (AC) motors				Total Hours:	8
Requisite learning areas/projects to be in place (Pre-requisite and co-requisite):		<ul style="list-style-type: none"> • LA 6 			
Learning project description: Install and wire three phase alternating current (AC) motors					
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 (PS01, 02,03,04) PM-02 (PS01, 02,03) PM-03 (PS01, 02,03) PM-04 (PS01, 02,03) PM-05 (PS01- 06) PM-06 (PS01, 02) PM-07 (PS01, 02,03)	KM-06-KT01	WM-01 (WE01, 02,03) WM-02 (WE01, 02,03) WM-03 (WE01, 02,03) WM-04 (WE01, 02,03)		
Planning/ Preparation	<p>Provide access to (Given): 3- phase motors, Contactors, Rotary switch, Starter, Training panel and material and equipment as per last column;</p> <p>Apprentices must be able to do/perform the following (hard and soft) skills:</p> <ul style="list-style-type: none"> • Select and wear PPE • Read and interpret task instructions • Conduct risk assessment • Select the correct tools and equipment • Transport tools and equipment to workstation safely 	<p>Knowledge of:</p> <ul style="list-style-type: none"> • Reading and interpreting power circuit diagrams • The operating/working principles of 3 phase motors. Range: includes but not limited to squirrel cage induction motor, slip ring induction motor (wound rotor), 2 speed motor. • Components of 3-phase motor. Range: stator, rotor, brush gear, frame, fan, shaft key. • Changing the direction of rotation of a 3 phase motor using a rotary switch and contactors • Motor test to be performed on 3- phase motors. Range: continuity test, insulation resistance between 	<p>Under supervision:</p> <ul style="list-style-type: none"> • Install and wire three phase starter • Install cable from the supply to a three phase starter • Perform three phase motor tests • Connect three phase motors to starter(s) • Commission three phase systems • Complete documentation • Perform housekeeping 	Lecture, presentations DVDs, audio-visual Role play Group work Motor Trainer	<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 <p>Tools, equipment and materials incl.: Range of materials and tools to be covered (minimum):</p> <ul style="list-style-type: none"> • Electrical toolbox <p>Materials:</p> <ul style="list-style-type: none"> • Cable
Implementation/ Execution Repair	<ul style="list-style-type: none"> • Wire three phase starter • Perform three phase motor test 				

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	<ul style="list-style-type: none"> Connect three phase starter to three phase motor Commissions the system 	<p>components, insulation resistance between components and earth, mechanical examination.</p> <ul style="list-style-type: none"> Advantages and disadvantages of 3- phase motor 			<ul style="list-style-type: none"> Cable Glands Cable tray Cable ties wall plugs Lugs Ferrules <p>Tools</p> <ul style="list-style-type: none"> Multi-meter Insulation resistance tester Drilling machine Drill bits Crimping tool Cable strapping tool
Evaluation/ Documentation	<ul style="list-style-type: none"> Evaluates the correctness of the completed task according to drawings and/or instructions Report work progress to appropriate personnel Inspect and clean tools Store and secure tools and materials Complete applicable work documentation Perform housekeeping 				
Total	Hours: 8				
Specialisation additions	Equipment that requires authorisation				
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 PPE is worn Task is completed as per job card Correct cable size used Overloads are at the correct setting Over-current devices selected are at the correct rating Safety procedures are followed Risk assessment undertaken Motor test report is completed Site is cleaned 					