

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):		• 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	components, insulation resistance between components and earth, mechanical examination. <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
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				Tools <ul style="list-style-type: none">• Multi-meter• Insulation resistance tester• Drilling machine• Drill bits• Crimping tool• Cable strapping tool
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					