

NOCC-A21 Electrician: Competence Package

Relevant Occupation/trade title: Electrician				SAQA ID: 91761	
Learning Area 8: Install power supply (Service entrance) and associated equipment to buildings and premises				Total Hours:	88
Learning Project 3: Select, install and wire power supply switch and control gear (power off) and metering systems (incl. KWh meters and smart meters, PTs and CTs)				Total Hours:	40
Requisite learning areas/projects to be in place (Pre-requisite and co-requisite):		<ul style="list-style-type: none"> LA 8, LP1-2 			
Learning project description: Apprentices select, install and wire power supply switch and control gear (power off) and metering systems (incl. KWh meters and smart meters, PTs and CTs).					
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-02-PS02, PM05-PS06, PM-06-PS02	KM07-KT03	WM-01-WE02, WM-02-WE03, WM-03-WE01-03		
Planning/Preparation	<p><u>Provide access to (Given):</u> Empty distribution board, electrical wiring diagram and layout sketch, 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 layout sketch Read and interpret electrical diagram Perform a risk assessment on the task Plan positioning of switch and control gear as per layout sketch Plan wiring as per diagram Identify the tools and materials required 	<p><u>Knowledge of:</u></p> <ul style="list-style-type: none"> Specific safety procedures related to wiring, termination and connection of switch gear and control gear Operation of different types of switch and control gear (incl. metering) Statutory requirements as per work conducted Sizes of lugs and methods for lugging Labelling of conductors, switch gear and control gear Safe distribution of cables and conductors 	<p><u>Under supervision:</u></p> <ul style="list-style-type: none"> Select, install and wire power supply switch and control gear (power off) and metering systems (incl. KWh meters and smart meters, PTs and CTs) (in a variety of contexts) 	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 and tools to be covered (minimum):</p>

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	<ul style="list-style-type: none"> Identify obstacles and necessary precautions in relation to task Plan sequence of tasks 				<ul style="list-style-type: none"> Crimping tool Cable cutter/Hacksaw Electrical hand tools standard toolbox Associated Powertools
Implementation/ Execution Repair	<ul style="list-style-type: none"> Transport materials and tools safely to site Cordon off work area according to statutory requirements. Danger Tape; Marker Poles; Cones; Hazard Light Fit switch and control gear as per layout Insert slotted trunking where applicable Complete wiring of switch and control gear Fit lugs Secure the lugs to switchgear/buzz bars Blank off any open spaces Label switch and control gear, conductors and cable according to drawing 				<p>Materials:</p> <ul style="list-style-type: none"> DB Board Examples of switchgear (CTs, PTs, etc.) Lugs Cable ties Heat shrinks Insulation tape of different colours Conductors Cables Slotted trunking Metering instruments (khW meter, smart meter, voltmeter, ammeter) Labelling Blanking plates <p>PPE:</p> <ul style="list-style-type: none"> Hard hat Safety boots Gloves Safety glasses
Evaluation/ Documentation	<ul style="list-style-type: none"> Clean work area after completion of task in accordance with work site procedures and housekeeping standards Dispose of waste materials in accordance with safety standards and environmental requirements Complete necessary documentation and submit to designated personnel. 				
Total	Hours: 40				
Specialisation additions					
Assessment guidance					
<ul style="list-style-type: none"> Self assessment Group assessment Theory test 					

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Criteria for assessment:

- Planning for task
- Interpretation of layout sketches and electrical diagram
- Identification of risks
- Correct selection, positioning and operation of equipment (incl. metering)
- Electrical cables are wired as per given diagram and labelled accordingly
- Use of appropriate equipment and tools
- Clean worksite after completion of task and equipment returned safely to store

Work in progress