

NOCC-A21 Electrician: Competence Package

Relevant <b>Occupation</b> /trade title: Electrician			SAQA ID: 91761		
Learning Area 4: <b>Read, interpret and revise engineering, schematics drawings and documentation</b>			Total Hours:		40
Learning Project 3: <b>Identify, read and interpret electrical schematic drawings and specifications</b>			Total Hours:		8
Requisite learning areas/projects to be in place (Pre-requisite and co-requisite):		• <b>LA1 (LP 10)</b>			
<b>Learning project description: Identify, read and interpret electrical diagrams and specifications (schematic and wiring diagrams, domestic, industrial and commercial).</b>					
Activity phase	Practical Skills Modules Content	Underpinning Knowledge Module Content	Work Experience Module Content (Exposure to be given)	Didactical-methodological advice	Learning materials/Tools and Equipment
Reference to QCTO Curriculum	PM-02-PS02	KM-None	WM-None		
Planning/ Preparation	<p><b><u>Provide access to (Given):</u></b> Electrical diagrams specifications ( schematic and wiring diagrams, domestic, industrial and commercial) and equipment.</p> <p><b><u>Apprentices must be able to do/perform the following (hard and soft) skills:</u></b></p> <p><b>Prepare to use electrical schematic drawings and specifications</b></p> <ul style="list-style-type: none"><li>Determine the need for drawings and specifications from the characteristics of the work to be undertaken.</li><li>Follow established routines to obtain drawings and</li></ul>	<p><b><u>Knowledge of:</u></b></p> <p><b>Electrical circuit and wiring diagrams encompassing:</b></p> <ul style="list-style-type: none"><li>Types of electrical drawings: block and circuit wiring diagrams</li><li>Purpose and application of block and circuit wiring diagrams</li><li>IEC standard symbols used to represent components on electrical diagrams</li><li>Wiring standards(statutory requirements) used in</li></ul>	<p><b><u>Under supervision:</u></b></p> <ul style="list-style-type: none"><li>Access, select and view drawings</li><li>Extract and use information from drawings to define scope of work</li><li>Discuss appropriateness/ correctness of electrical drawing specifications with supervisor</li><li>Issue latest amendments of drawings to the relevant personnel</li><li>Identify and interpret component</li></ul>	<ul style="list-style-type: none"><li>Instructions/Lectures</li><li>Internet research</li><li>Site visits</li><li>Observation method with checklist.</li><li>Case studies</li><li>Role play</li></ul>	<p><b>Print materials, electronic files, software applications incl.:</b></p> <ul style="list-style-type: none"><li>SANS Drawing Standards</li><li>Software to view electrical circuit and wiring diagrams</li><li>Electrical circuit and wiring diagrams required as per work specifications</li><li>Text books</li><li>Training manuals for trainers and apprentices incl.</li></ul>

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	<p>specifications required for the work to be undertaken</p> <ul style="list-style-type: none"> <li>• Determine job requirements from work instructions</li> <li>• Interpret and read job specifications</li> <li>• Select drawings and specifications relevant to information required</li> <li>• Identify connections and integrity of equipment/ systems/ components/ appliances to be installed or maintained</li> <li>• Identify and check correct equipment for viewing and processing of drawings and specifications</li> </ul>	<p>the features of circuit and wiring diagrams</p> <ul style="list-style-type: none"> <li>• Identification of cable/conductor type, origin and route from a cable/conductor schedule</li> <li>• Interpret and verify a cable/conductor schedule for a given installation</li> <li>• Interpret and verify the drawing to determine the sequence of operation</li> <li>• Connecting equipment using circuit and wiring diagrams</li> <li>• Work procedures with regards to appropriate guidelines (filing systems)</li> </ul>	<p>requirements</p> <ul style="list-style-type: none"> <li>• Interpret dimensions, instructions, symbols and conventions</li> <li>• Use the drawings to explain and communicate the information content.</li> <li>• Wire according to the wiring schematic diagrams.</li> <li>• Safeguard and store drawings</li> <li>• Engage in regular housekeeping activities, drawing tool and equipment maintenance</li> <li>• Provide work documentation, verbal and written reports as required by the company</li> </ul>	<p>multimedia software</p> <ul style="list-style-type: none"> <li>• Set of presentation aids (videos, slides) for overhead or LED/LCD projectors</li> </ul> <p><b>Stationary machinery, incl.:</b></p> <ul style="list-style-type: none"> <li>• Computer system</li> <li>• Printer, plotter</li> <li>• Scanner</li> <li>• Photocopy machine</li> <li>• Tracing light box</li> <li>• Flat file cabinet for blueprints/drawings</li> </ul> <p><b>Measuring and testing instruments incl.:</b></p> <ul style="list-style-type: none"> <li>• Steel measuring tape</li> <li>• Acrylic Rulers</li> <li>• Reduction scale rulers</li> </ul>
<b>Implementation/ Execution</b>	<p><b>Interpret and use electrical circuit and wiring diagram and specifications to obtain job information</b></p> <ul style="list-style-type: none"> <li>• Select drawings and specifications appropriate to the work being undertaken</li> <li>• Interpret and verify drawings and specifications using knowledge of drawing layouts, drawing standards and symbols</li> <li>• Extract equipment, tools, materials, component layout and sequencing arrangements from drawings and specifications for application to work undertaken</li> <li>• Review specifications to ascertain their format and</li> </ul>			

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	<p>where information relevant to the work to be undertaken is located</p> <ul style="list-style-type: none"> <li>• Interpret information given in specifications in relation to the work to be conducted</li> </ul>				
<b>Evaluation/ Documentation/ Housekeeping</b>	<p><b>Clean up work area and store files</b></p> <ul style="list-style-type: none"> <li>• Store and file drawings securely</li> <li>• Conduct housekeeping activities</li> <li>• Care for tools and equipment used to view, archive, print-out or copy drawings</li> <li>• Report work progress to appropriate personnel</li> <li>• Complete work documentation</li> </ul>				
<b>Total</b>	Hours: 8				
<b>Specialisation additions</b>					
<b>Assessment guidance</b>					
<p><b>Criteria for assessment:</b></p> <ul style="list-style-type: none"> <li>• Reading and interpreting electrical wiring diagrams/ schematic drawings to required specifications</li> <li>• Understanding of symbols and standards and their application</li> <li>• Communicating by using electrical wiring diagrams/ schematic drawings.</li> <li>• Compiling material lists</li> </ul>					