

NOCC-A21 Electrician: Competence Package

Relevant Occupation/trade title: Electrician			SAQA ID: 91761		
Learning Area 4: Read, interpret and revise engineering, schematics drawings and documentation			Total Hours:		40
Learning Project 4: Create and modify simple electrical sketches and schematic drawings			Total Hours:		8
Requisite learning areas/projects to be in place (Pre-requisite and co-requisite):		<ul style="list-style-type: none">• LA 1 LP10• LA 4 LP3			
Learning project description: Create and modify simple electrical sketches and schematic drawings.					
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-None	KM-None	WM-None		
Planning/Preparation	<p><u>Provide access to (Given):</u> Sample electrical sketches and schematic drawings as per last column;</p> <p><u>Apprentices must be able to do/perform the following (hard and soft) skills:</u></p> <p>Determine electrical drawing information and requirements</p> <ul style="list-style-type: none">• Determine work order /customer requirements for intended usage of drawings and modifications• Check and interpret scope for schematic drawing design and/or modifications from work order, customer	<p><u>Knowledge of:</u></p> <ul style="list-style-type: none">• Physical properties and capabilities of the range of materials, tools and equipment used for technical drawing work• Technical drawing techniques and their application to a range of contexts and subject matter• Technical drawing practices, history and theory, including current standards and conventions• Intellectual property issues and legislation	<p><u>Under supervision:</u></p> <ul style="list-style-type: none">• View and modify existing electrical sketches to suit site work requirements• Create a simple sketch for electrical wiring work to be undertaken	<ul style="list-style-type: none">• Instructions/Lectures• Case studies	<p>Print materials, electronic files, software applications incl.:</p> <ul style="list-style-type: none">• SANS Drawing Standards• Software to view engineering drawings• Basic software to create and sketch electrical circuits and wiring diagrams• Electrical circuit and wiring diagrams required as per work

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	<p>requirements, previous site inspections, available other drawings etc.</p> <ul style="list-style-type: none"> Identify and interpret dimensions, location information, products, systems and components represented in available drawings Source required additional information from manuals, customer specifications, product suppliers etc. Prepare plan for site inspection and measurement, drawing design and/or modifications including layout, additional required information and resources Discuss and fully clarify any uncertainties with key personnel Inform responsible personnel when given work requirements for drawing design and/or modification exceed own job description Seek assistance and support from appropriate personnel as required 	<p>associated with technical drawing work</p> <p>Drawing techniques including:</p> <ul style="list-style-type: none"> Computer-aided drawing Drafting using drafting instruments Drawing orthogonal projection Drawing to represent: <ul style="list-style-type: none"> Scale Perspective Dimension Volume Freehand drawing Geometric drawing Lettering Rendering. 			<p>specifications</p> <ul style="list-style-type: none"> Text books Training manuals for trainers and apprentices incl. multimedia software Set of presentation aids (videos, slides) for overhead or LED/LCD projectors <p>Stationary machinery, mobile plants, transport, access and lifting equipment incl.:</p> <ul style="list-style-type: none"> Computer system Printer, plotter Scanner Photocopy machine Tracing light box Flat file cabinet for blueprints/drawings <p>Hand- & power tools and PPE incl.:</p> <ul style="list-style-type: none"> A3 drawing board with small drawing head or double lock mechanism Set of refillable technical pens (0.18- 0.70) Set square with protractors and scale ruler
Implementation/ Execution/ Processing	<p>Create and modify simple electrical schematic sketches drawings</p> <ul style="list-style-type: none"> Visually assess, measure and record site features as required Conduct calculations, as 				

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	<p>required, to ensure all measurements are obtained and verified</p> <ul style="list-style-type: none"> • Determine technical data of electrical system and components to identify parameters that are to be included in the drawing • Produce sketch and drawing modifications to proportion • Apply correct sketching techniques and line construction to the sketch • Apply dimensions, parameters and notations • Ensure all collected additional information is documented appropriately to inform later work • Adhere to correct symbols and standard drawing conventions • Check electrical schematic drawing for accuracy and compliance with given specifications • Verify sketched/modified drawing with appropriate personnel or customer • Hand over sketched/modified drawing to technical draughtsperson to produce further detailed drawing by drawing board or CAD, if required 				<ul style="list-style-type: none"> • Compass set with pen adaptor • Drafting templates/stencils (architect, lettering, electrician, engineering) <p>Measuring and testing instruments incl.:</p> <ul style="list-style-type: none"> • Steel measuring tape • Acrylic Rulers • Geometry set squares • Reduction scale rulers (Architect's scale)
Evaluation/ Documentation	Clean up work area and store or distribute files				

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	<ul style="list-style-type: none"> • Store and file drawings securely • Distribute file to appropriate personnel or customer • Conduct housekeeping activities • Care for tools and equipment used to view, create, archive, print-out or copy drawings • Report work progress to appropriate personnel • Complete work documentation 				
Total	Hours: 8				
Specialisation additions					
Assessment guidance					
Criteria for assessment: <ul style="list-style-type: none"> • Modified sketch as per requirements • Explanations as to what changes were effected in line with work requirements 					