

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
<p>Implementation/ Execution/ Processing</p>	<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)
<p>Evaluation/ Documentation</p>	<p>Clean up work area and store or distribute files</p>				

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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				
<p>Criteria for assessment:</p> <ul style="list-style-type: none"> Modified sketch as per requirements Explanations as to what changes were effected in line with work requirements 				