

# NOCC-A21 Electrician: Competence Package

Relevant Occupation/trade title: Electrician			SAQA ID: 91761		
Learning Area 2: Identify, care and use of basic, trade-specific hand- & power tools and equipment			Total Hours:		192
Learning Project 5: Use hand and power tools to fabricate mechanical installation parts in an electrical environment			Total Hours:		40
Requisite learning areas/projects to be in place (Pre-requisite and co-requisite):		<ul style="list-style-type: none"><li>LA 1 (LP 1,2, 3, 7, 9, 12)</li><li>LA 2 (LP 2)</li></ul>			
Learning project description: Use hand and power tools to fabricate mechanical installation parts in an electrical environment					
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	PM01-PS01 PM-01-PS02	KM-02-KT01	WM: None		
Planning/Preparation/	<p><b><u>Provide access to (Given):</u></b></p> <p>Drawings of mechanical installation part(s) to be fabricated, required materials and tools (see. Spec.)</p> <p><b><u>Apprentices must be able to do/perform the following (hard and soft) skills:</u></b></p> <p><b>Identify and select hand and power tools</b></p> <ul style="list-style-type: none"><li>Read drawings and/or instructions of task</li><li>Perform risk assessment on the task</li><li>Determine safe working procedures and tool operations</li></ul>	<p><b><u>Knowledge of:</u></b></p> <ul style="list-style-type: none"><li>PPE needed for the task</li><li>Different types of materials and their properties</li><li>Different types of hand and power tools and their uses needed for the task</li><li>Safety precautions and risk assessment regarding the use of hand and power tools specific to the task</li><li>General safety regulations</li><li>OHS Act</li><li>Standard operating procedures related to the task</li></ul> <p><b>Measuring and marking out techniques encompassing:</b></p>	<p><b><u>Under supervision:</u></b></p> <ul style="list-style-type: none"><li>Perform risk assessment on the use of hand- and power tools</li><li>Be actively involved in work processes using hand and power tools (e.g. cutting, drilling, threading, filing, bending, connecting)</li><li>Inspect equipment and check registers</li><li>Store hand and power tools, record and report any defects</li><li>Engage in regular housekeeping activities, tool and equipment maintenance</li></ul>	<ul style="list-style-type: none"><li>Research /Desk study</li><li>Case studies /scenarios</li><li>Technical discussions</li><li>Group work</li><li>Lecture/ instructions</li><li>Presentations</li><li>Textbook work</li></ul>	<p><b>Print materials, electronic files, software applications incl.:</b></p> <ul style="list-style-type: none"><li>OHS Act</li><li>Text books</li><li>Training manuals for trainers and apprentices incl. multimedia software</li><li>Worksheets for fabrication of projects</li><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>Table/pedestal drilling machine</li></ul>

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	<ul style="list-style-type: none"> <li>Identify the correct hand or power tool for fabrication</li> <li>Inspect tools for damages and report any faults to appropriate personnel</li> <li>Select equipment needed to hold materials or support tool application</li> <li>Plan appropriate use of hand- and power tools</li> <li>Identify material needed for the task</li> <li>Select and wear personal protective equipment (PPE)</li> </ul>	<ul style="list-style-type: none"> <li>Reasons for measuring and marking out</li> <li>Tools used for marking out</li> <li>Measuring and marking out a project accurately following correct procedures.</li> <li>Reducing waste when marking out</li> <li></li> <li>Techniques in using vernier callipers</li> <li>Using vernier callipers to measure engineering components</li> </ul>			<ul style="list-style-type: none"> <li>Pedestal grinding machine</li> <li>Table/ pedestal marking/ inspection table</li> </ul> <p><b>Hand- &amp; power tools incl.:</b> Electrician's tool box with standard tool set Workbench/ workshop store tool set including:</p> <ul style="list-style-type: none"> <li>Hacksaw</li> <li>Drill bits</li> <li>Taps &amp; dies</li> <li>Files</li> <li>Marking tools</li> <li>Steel square</li> <li>Scriber</li> </ul> <p><b>PPE:</b></p> <ul style="list-style-type: none"> <li>Eye protection</li> <li>Hearing protection</li> <li>Gloves</li> <li>Safety boots</li> <li>Safety clothing</li> </ul> <p><b>Measuring and testing instruments incl.:</b></p> <ul style="list-style-type: none"> <li>Vernier calliper</li> <li>Steel ruler</li> </ul> <p><b>Training workshop and laboratory equipment incl.:</b></p>
<b>Implementation/ Execution/ Processing</b>	<p><b>Use hand- and power tools</b></p> <ul style="list-style-type: none"> <li>Use appropriate personal protective equipment (PPE)</li> <li>Acquire the material and tools required to complete the task</li> <li>Locate and hold in place material needed for hand- and power tool application</li> <li>Measure and mark areas for hand and power tool application</li> <li>Safely use hand or power tool to perform task</li> <li>Safely store hand- and power tools when not in immediate use</li> <li>Continuously inspect work progress and compliance with given measurements/ tolerances in accordance with technical drawings</li> </ul>	<p><b>Tool applications to produce mechanical installation part(s) must include:</b></p> <ul style="list-style-type: none"> <li>Cutting, drilling, threading, tapping, filing, joining</li> </ul> <p><b>Range of work materials to be covered (minimum):</b></p> <ul style="list-style-type: none"> <li>Metal</li> <li>PVC</li> <li>Copper</li> </ul>			

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	and/or instructions				– Workbenches for practical exercises
<b>Evaluation/ Documentation/ Housekeeping</b>	<b>Evaluate the work result and conduct housekeeping activities</b> <ul style="list-style-type: none"> <li>Evaluate the correctness of completed task according to drawings and/or instructions</li> <li>Report work progress to appropriate personnel</li> <li>Clean the work area</li> <li>Inspect and clean hand- and power tools</li> <li>Store and secure work pieces, tools &amp; materials</li> <li>Complete applicable work documentation</li> </ul>				
<b>Total</b>	Hours: 40				
<b>Specialisation additions</b>					
<b>Assessment guidance</b>					
<ul style="list-style-type: none"> <li><b>Self assessment</b></li> <li><b>Group assessment</b></li> <li><b>Theory test</b></li> </ul> <p><b>Criteria for assessment:</b></p> <ul style="list-style-type: none"> <li>Conducting risk assessment specific to the project</li> <li>Using hand and power tools safely</li> <li>Using appropriate PPE safely</li> <li>Planning task accurately (tools, materials and time required) in accordance to drawings and/or instructions and identifying and reporting of unsafe or defective equipment in accordance to worksite procedures</li> <li>Caring and storing of equipment in accordance with manufacturers recommendations and worksite procedures</li> </ul>					