

NOCC-A21 Electrician: Competence Package

| <b>Relevant Occupation/trade title:</b> Electrician   |  |  | <b>SAQA ID:</b> 91761  |  |   |
|---|--|--|--|--|---|
| <b>Learning Area 5: Install wiring systems and accessories (low voltage) in domestic buildings and premises (incl. earthing and bonding)</b>  |  |  | <b>Total Hours:</b>  | <b>128</b>   |   |
| <b>Learning Project 6: Install internal and external single phase circuits to fixed appliances and equipment (e.g. stoves, geysers, swimming pool pumps/heaters, HVAC, electrical gates, etc.)</b>  |  |  | <b>Total Hours:</b>  | <b>16</b>  |   |
| <b>Requisite learning areas/projects to be in place (Pre-requisite and co-requisite):</b>   |  | <b>LA 5 – LP5</b>  |  |  |   |
| <b>Learning project description: Internal and external single-phase circuits to other points of consumption (e.g. stoves, geysers, swimming pool pump, HAAV, electrical gates, etc.) installation specifications should be completed in a domestic building and premises. Determine the system specifications, plan, mount and hand over the installation system for each selected room</b> |  |  |  |  |   |
| <b>Activity phase</b>   | <b>Practical Skills Modules Content</b>  | <b>Underpinning Knowledge Module Content</b>   | <b>Work Experience Module Content (Exposure to be given)</b>   | <b>Didactical-methodological advice</b>  | <b>Learning materials/Tools and Equipment</b>   |
| <b>Reference to QCTO Curriculum</b>   | PM-05-PS01, PM-05-PS02, PM-05-PS04, PM-05-PS05-06, PM-06-PS01-02, PM-07-PS01-03, PM-08-PS01-05   | KM-03-KT03<br>KM-05-KT01<br>KM-05-KT02<br>KM-05-KT03   | WM-01-WE01-03<br>WM-02-WE01-03<br>WM-03-WE01-03  |  |   |
| <b>Planning/Preparation</b>   | <p><b><u>Provide access to (Given):</u></b><br/>Work tasks/job requests and material and equipment as specified in last column;</p> <p><b><u>Apprentices must be able to do/perform the following (hard and soft) skills:</u></b></p> <p><b>Prepare for the installation of single phase circuits to fixed appliances</b></p> <ul style="list-style-type: none"> <li>Identify, obtain and understand statutory requirements for a given work area</li> </ul> | <p><b><u>Knowledge of:</u></b></p> <ul style="list-style-type: none"> <li>Names and functions of internal and external single phase circuits to other points of consumptions and components</li> <li>Regulations SANS 10142-1 related to fixed appliances</li> <li>Size of conductors</li> <li>Rating of isolators and associated control devices</li> </ul> | <p><b><u>Under supervision:</u></b></p> <ul style="list-style-type: none"> <li>Develop work plans for of internal and external single phase circuits to other points of consumptions in the house</li> <li>Initially perform preparatory works under direct and constant supervision of a qualified Electrician</li> <li>Undertake all preparatory installation</li> </ul> | <ul style="list-style-type: none"> <li>Self-study assignments</li> <li>Using of internet sources, text books and work sheets</li> <li>Instruction</li> <li>Observation method</li> </ul> | <p><b>Print materials, electronic files, software applications incl.:</b></p> <ul style="list-style-type: none"> <li>OHS Act</li> <li>SANS 10142-1</li> <li>Text books</li> <li>Manuals for trainers and apprentices incl. multimedia software</li> <li>Set of presentation aids (videos, slides) for overhead or LED/LCD projectors</li> </ul> |

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|   | <ul style="list-style-type: none"> <li>• Identify health and safety risks and follow established risk control measures and procedures in preparation for the work</li> <li>• Prepare installation in consultation with others affected by the work</li> <li>• Determine the scope and location of the work to be undertaken from documentation</li> <li>• Plan the locations for points of consumption of fixed appliances, machines, switchgear and accessories within the constraints of the building structure and surrounding premises</li> <li>• Identify and check material needed for the installation against job requirements</li> <li>• Identify and check tools, equipment and measuring devices needed for the installation work</li> </ul> |  | <p>activities without assistance but regular supervision</p> <ul style="list-style-type: none"> <li>• Perform internal and external single phase circuits to other points of consumptions installations in ceilings/walls/floors under direct and constant supervision until competent</li> <li>• Install internal and external single phase circuits to other points of consumptions without assistance but regularly supervised</li> </ul> |  | <p><b>Access equipment incl.:</b></p> <ul style="list-style-type: none"> <li>• Ladders</li> </ul> <p><b>Hand- &amp; power tools and PPE incl.:</b></p> <ul style="list-style-type: none"> <li>• Standard electrician's toolbox</li> </ul> <p><b>Measuring and testing instruments incl.:</b></p> <ul style="list-style-type: none"> <li>• Measuring tape</li> <li>• Continuity tester</li> </ul> <p><b>Training workshop and laboratory equipment incl.:</b></p> <ul style="list-style-type: none"> <li>• Installation cabins/ cubicles</li> <li>• Set of various domestic appliances for fixed installations including but not limited to stoves, geysers, HVAC, pool pumps, electric gate motors, garage door motors, shutter motors</li> <li>• Set of consumables consisting of wire enclosures, trunking, cables</li> <li>• Set of reusable indoor and outdoor, flush and surface</li> </ul> |
| <p><b>Implementation/ Execution</b></p> | <p><b>Install single phase circuits to fixed appliances and equipment</b></p> <ul style="list-style-type: none"> <li>• Follow risk control measures and procedures for carrying out the work</li> <li>• Install fixed appliances/machinery straight and square in the required locations and within acceptable tolerances</li> <li>• Install cable or wire ways from point of consumption to fixed appliance/machinery</li> <li>• Terminate wiring at appliances, switchgear and accessories in</li> </ul>  |  |  |  |  |

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|   | <p>accordance with manufacture's specifications and functional and regulatory requirements</p> <ul style="list-style-type: none"> <li>• Assemble/position and secure wiring enclosures/ trunking /support systems from point of consumption to fixed appliance/machinery</li> <li>• Undertake inspection of the installed appliances, switchgear and accessories</li> <li>• Carry out installation efficiently without unnecessary waste of materials or damage to circuits, fixed appliances, machines, the surrounding environment</li> </ul> |  |  |  | <p>mounted junction boxes, control gear and switchgear enclosures, for various IP ratings</p> |
| <b>Evaluation/ Documentation</b>  | <p><b>Complete the installation and conduct housekeeping activities</b></p> <ul style="list-style-type: none"> <li>• Communicate completion of job to appropriate personnel</li> <li>• Store and care for tools and safety equipment</li> <li>• Complete work documentation</li> <li>• Clean work site and make it safe</li> </ul>  |  |  |  |   |
| <b>Total</b>  | Hours: 16   |  |  |  |   |
| <b>Specialisation additions</b>   |   |  |  |  |   |
| <b>Assessment guidance</b>  |   |  |  |  |   |
| <p><b>Criteria for assessment:</b></p> <ul style="list-style-type: none"> <li>• Fixed appliances and control devices connected according to manufacturers specifications and complying with SANS-10142-1</li> <li>• Circuits correctly connected, mechanically tight and neatly loomed to protection and control devices</li> <li>• Relevant tools and equipment were used according to job specifications and statutory requirements</li> <li>• Worksite was left neat and tidy</li> </ul> |   |  |  |  |   |

Work in progress