

NOCC-A21 Electrician: Competence Package

| Relevant Occupation/trade title: Electrician | | | | SAQA ID: 91761 | |
|---|---|--|--|--|---|
| Learning Area 10: Install, maintain and troubleshoot electrical transformers and associated controls | | | | Total Hours: | 72 |
| Learning Project 4: Install and wire auto-transformers | | | | Total Hours: | 8 |
| Requisite learning areas/projects to be in place (Pre-requisite and co-requisite): | | <ul style="list-style-type: none"> • Phase 1 completed • LA 8 LP 3 • LA 10 LP 1-2 | | | |
| Learning project description: Apprentices install and wire auto-transformers. | | | | | |
| 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 | PM05-PS04 | KM07-KT03 | WM-None | | |
| Planning/Preparation | <p><u>Provide access to (Given):</u> Scenario with a load (VA rating and voltage), single and three phase auto-transformers, electrical wiring diagram, materials and equipment as identified in last column;</p> <p><u>Apprentices must be able to do/perform the following (hard and soft) skills:</u></p> <ul style="list-style-type: none"> • Read and interpret the scenario given • Select correct single and or three phase auto-transformer • Select correct configuration • Identify transformer protection • Read and interpret electrical diagram • Perform a risk assessment on the task • Plan positioning of transformer(s) • Plan wiring as per diagram • Identify the tools and materials required • Identify obstacles and necessary precautions in relation to task | <p><u>Knowledge of:</u></p> <ul style="list-style-type: none"> • Theory of auto-transformers (function and operation, safety) • Types and application of auto-transformers • Configurations of auto-transformers • Auto-transformer protection • Specific safety procedures related to auto-transformers • Statutory requirements as per work conducted • Labelling of auto-transformers | <p><u>Under supervision:</u></p> <ul style="list-style-type: none"> • Select, install and wire single and three phase auto-transformers (where applicable) • Have structured discussion on the selection of a auto-transformer for specific scenarios | Lecture, presentations DVDs, audio-visual Demonstrations Practical applications | <p>Print materials, electronic files, software applications incl.:</p> <ul style="list-style-type: none"> • Training manuals for trainers and apprentices incl. multimedia software • Set of presentation aids (videos, slides) for overhead or LED/LCD projectors • Statutory requirements: • SANS 10142-Part1 • Municipal by-laws <p>Tools, equipment and materials incl.:</p> <p>Range of materials and tools to be covered (minimum):</p> <ul style="list-style-type: none"> • Electrical hand tools standard toolbox • Associated Powertools • Measuring instruments |

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| Implementation/ Execution <u>Repair</u> | <ul style="list-style-type: none"> • Plan sequence of tasks • Transport materials and tools safely to site • Fit auto-transformer(s) as per diagram • Insert slotted trunking where applicable • Complete wiring of auto-transformer(s) • Fit lugs where applicable • Label auto-transformer(s) according to drawing • Test installation (power on) | | | | <p>Materials:</p> <ul style="list-style-type: none"> • Surface to mount transformer • Single and three phase auto-transformers • Lugs • Cable ties • Conductors • Cables • Slotted trunking • Metering instruments (voltmeter, ammeter) • Labelling <p>PPE:</p> <ul style="list-style-type: none"> • Hard hat • Safety boots • Gloves • Safety glasses |
| Evaluation/ Documentation | <ul style="list-style-type: none"> • Clean work area after completion of task in accordance with work site procedures and housekeeping standards • Dispose of waste materials in accordance with safety standards and environmental requirements • Complete necessary documentation and submit to designated personnel. | | | | |
| Total | Hours: 8 | | | | |
| Specialisation additions | | | | | |
| Assessment guidance | | | | | |
| <ul style="list-style-type: none"> • Self assessment • Group assessment • Theory test <p>Criteria for assessment:</p> <ul style="list-style-type: none"> • Planning for task • Interpretation of electrical diagram • Identification of risks • Correct selection, positioning and operation of auto-transformer(s) • Auto-Transformer(s) wired as per given diagram and labelled accordingly • Auto-Transformers configured as required • Auto-Transformer protection applied • Use of appropriate equipment and tools • Clean worksite after completion of task and equipment returned safely to store | | | | | |