

NOCC-A21 Electrician: Competence Package

Relevant Occupation/trade title: Electrician			SAQA ID: 91761		
Learning Area 8: Install power supply (service entrance) and associated equipment to buildings and premises			Total Hours:	88	
Learning Project 1: Lay and install supply cables (above and underground)			Total Hours:	16	
Requisite learning areas/projects to be in place (Pre-requisite and co-requisite):		<ul style="list-style-type: none"> Completion of Phase 1 			
Learning project description: Apprentices learn to lay and install supply cables to a building (both above and below incl. ground)					
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	PM-None	KM07-KT01, KM-07-KT04	WM-None		
Planning/Preparation	<p>Provide access to (Given): Scenario to lay and install an underground and above ground supply cable to building, area in the training centre for digging a trench of 5meters and tools, materials and equipment as identified in last column;</p> <p>Apprentices must be able to do/perform the following (hard and soft) skills:</p> <p>Underground:</p> <ul style="list-style-type: none"> Read and interpret the plan Perform a risk and environmental assessment on the task Plan the trench layout from mains supply according to statutory requirements Perform volt drop calculation Identify the tools and 	<p>Knowledge of:</p> <ul style="list-style-type: none"> Specific safety procedures related to the type of work and location (underground and working at heights) Statutory requirements as per work conducted Concepts, theories and principles of Supply Systems Volt drop calculation against the conditions in which supply cable is installed Bedding and taping of underground supply cables Types of supply cables (size up to limited to 16mm squared 1000 V AC/DC) under specific conditions and their installation methods (incl. 	<p>Under supervision:</p> <ul style="list-style-type: none"> Plan to install electrical supply cables Check cable equipment needed for installing cables for functionality and safety Install underground/above supply cables Specific work experience for municipalities: Erecting poles for overhead lines 	Lecture, presentations DVDs, audio-visual Group work Practical (trench digging and installation)	<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 SANS 10142-Part1 Municipal by-laws Statutory requirements <p>Tools, equipment and materials incl.: Range of materials and tools to be covered (minimum):</p> <ul style="list-style-type: none"> Turfer (Come-along)

NOCC-A21 Electrician: Competence Package

	<ul style="list-style-type: none"> materials required Identify obstacles and necessary precautions in accordance with local authority; wayleaves and servitudes and electrical regulations Water pipes; High Voltage cables; communication cables and conductors <p>Above ground:</p> <ul style="list-style-type: none"> Read and interpret the plan Perform a risk and environmental assessment on the task Plan the route on an existing cable tray/between two poles from mains supply according to statutory requirements Perform volt drop calculation Identify the tools and materials required Identify obstacles and necessary precautions in accordance with local authority; wayleaves and servitudes and electrical regulations Water pipes; High Voltage cables; communication cables and conductors 	<p>manufacturers specifications)</p> <ul style="list-style-type: none"> Techniques and specifics of erecting poles for overhead conductors Regulations regarding digging of trenches Draw wires; Draw cables; pulling sock Identification of obstacles and necessary precautions surrounding supply cable installation: wayleaves and servitudes and electrical regulations Water pipes; High Voltage cables; communication cables and conductor Environmental requirements and considerations around area of installation of supply cables 			<ul style="list-style-type: none"> Pulley and rope Draw wire Pulling sock Spade Shovel Pick Bandit tool Fibre glass extension ladder Cherry picker Electrical hand tools standard toolbox Associated Powertools <p>Materials:</p> <ul style="list-style-type: none"> Cables sizes up to 16mm squared 1000 V AC/DC Danger Tape Marker Poles Cones Cable trays Ducting and kick pipes Bandit straps Cable ties <p>PPE:</p> <ul style="list-style-type: none"> Hard hat Safety boots Safety harness Safety gloves Safety glasses
<p>Implementation/ Execution</p>	<p>Underground:</p> <ul style="list-style-type: none"> Transport materials and tools safely to site Mark work area according to statutory requirements. Danger Tape; Marker Poles; Cones; Hazard Light Excavate trench according to work plan and statutory requirements 				

NOCC-A21 Electrician: Competence Package

	<ul style="list-style-type: none"> • Fill trench with thin layer of bedding • Install electrical cables and cable guards as per work plan and manufacturer spec • Test cable (power off test) • Fill up the trench as per statutory requirements <p>Above ground:</p> <ul style="list-style-type: none"> • Transport materials and tools safely to site • Mark work area according to statutory requirements. Danger Tape; Marker Poles; Cones; Hazard Light • Install electrical cable according to planned route • Test cable (power off test) 				
Evaluation/ Documentation	<ul style="list-style-type: none"> • Return work area to its original state • 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: 16				
Specialisation additions	Putting up poles for municipal electricians in the work experience				
Assessment guidance					
<ul style="list-style-type: none"> • Self assessment • Group assessment • Theory test 					

NOCC-A21 Electrician: Competence Package

Criteria for assessment:

- Planning for task
- Interpretation of worksite plans
- Environmental assessment
- Identification of risks (water pipes, HV cables, communication cables)
- Correct selection of PPE
- Digging of trench according to standards
- Electrical cables are installed, positioned and secured according to statutory requirements and worksite procedures.
- Use of appropriate equipment and tools
- Clean worksite after completion of task and equipment returned safely to store

Work in progress