

NOCC-A21 Electrician: Competence Package

Relevant Occupation/trade title: Electrician			SAQA ID: 91761		
Learning Area 11: Install, maintain and troubleshoot low voltage <u>alternative</u> power supply systems and associated equipment			Total Hours:		64
Learning Project 2: Maintain and troubleshoot power generator systems			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• LA11 LP1			
Learning project description: Apprentices learn to maintain, test, repair and commission single and three phase power generator systems.					
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-01 (PS-01, 02, 03) PM-02 (PS 01, 02, 03) PM03 (PS01, 02, 03) PM-04 (PS01, 02, 03) PM-05 (PS 01- 06) PM-06 (PS 1-2) PM-07 (PS 01-03) PM-08 (PS01-05)	KM-05 (KT02 - 03) KM-06-KT03 KM07 (KT02, 05) KM09 (KT01)	WM-01 (WE1-3) WM-02 (WE1-3) WM-03 (WE1-3) WM-04 (WE01-03) WM-05 (WE01,02,03)		
Planning/ Preparation	<p><u>Provide access to (Given):</u> Circuit diagrams, manufacturer specifications, motor generators and change over switches (incl. faulty elements), relevant tools and measuring instruments as per last column, statutory requirements.</p> <p><u>Apprentices must be able to do/perform the following (hard and soft) skills:</u></p> <ul style="list-style-type: none">• Wear correct PPE• Complete documentation• Conduct risk assessment• Select the correct tools and equipment• Transport all materials and equipment safely to	<p><u>Knowledge of:</u></p> <ul style="list-style-type: none">• Mechanical maintenance and inspection on single and three phase power generator systems• Electrical maintenance and inspection single and three phase power generator systems• Common generator faults• Appropriate methods for maintenance and repair of generators	<p><u>Under supervision:</u> <i>If workplace allows for this exposure:</i></p> <ul style="list-style-type: none">• Perform preventative maintenance (electrical and mechanical) on power generators according to manufacturer’s specifications weekly, monthly and yearly• Perform lock-out procedures• Trace faults on power generators systems (troubleshooting)• Repair or replace faulty components	Lecture, presentations DVDs, audio-visual Group work, Internet	<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 <p>Tools, equipment and materials incl.: Electrical toolbox</p> <p>Materials</p> <ul style="list-style-type: none">• OHS Act• SANS 01421• Local Authority requirements

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	workstation				<ul style="list-style-type: none">Manufactures specificationsWork-site procedures <p>Equipment:</p> <ul style="list-style-type: none">Single and three phase motor generator systemsMotor generator componentsRelaysIndication lightsSwitchesProtective devices (fuses, circuit breakers, earth leakage units, etc.)Connection terminalsManual change over switchPre-wired AMF panel (Automatic Mains Failure)Variety of conductorsManual change over switchControllersLabelling and notice boardsIndication lightsProtective devices (fuses, circuit breakers, earth leakage units, etc.)Connection terminalsManual change over switchPre-wired AMF panel (Automatic Mains Failure)Variety of conductors <p>PPE:</p> <ul style="list-style-type: none">Safety overallSafety boots
Implementation/ Execution/ Repair	<ul style="list-style-type: none">Perform preventative maintenance (electrical and mechanical) according to manufacturer’s specifications weekly, monthly and yearlyPerform lock-out proceduresTrace and repair/replace faults on power generators systems (troubleshooting)				
Evaluation/ Documentation	<ul style="list-style-type: none">Test the generator to ensure that is working correctly (functionality test)Report work progress to appropriate personnelInspect and clean toolsStore and secure tools and materialsComplete applicable work documentationPerform housekeeping				
Total	Hours: 8				
Specialisation additions					
Assessment guidance					
<ul style="list-style-type: none">Self assessmentGroup assessment					

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- **Theory test**
- Correct PPE is worn
- Risk assessment undertaken
- Work permit completed
- Lock out and safety procedures are followed
- Generator system tested to ensure functionality
- Task is completed as per job card
- Housekeeping performed

Work in progress