

Athenkosi Hlonyane

Mechatronic Engineer (ECSA Candidate) - Instrumentation & Control | Plant Operations

Rustenburg, North West • Open to Gauteng (Pretoria/Johannesburg)

066-255-6042 | hlonyanea@gmail.com | [linkedin.com/in/athenkosi](https://www.linkedin.com/in/athenkosi) | github.com/athenkosi

PROFESSIONAL SUMMARY

My experience spans operations across mining & minerals processing plants, and automotive manufacturing plants in Mechanical, Electrical & Instrumentation Engineering roles. I'm actively pursuing my GCC (Factories) and working toward being a registered Professional Engineer (Pr. Eng), with a passion for Mechatronics, IoT, and Industry 4.0 technologies. I am driven to contribute in roles that integrate innovative engineering solutions with safety, plant availability and operational resilience.

EDUCATION

University of Pretoria <i>BEngHons in Electronic Engineering (NQF 8) - Advanced Process Control</i>	Pretoria, South Africa <i>Jan. 2025 – Present</i>
Stellenbosch University <i>BEng Mechatronic Engineering (NQF 8)</i>	Stellenbosch, South Africa <i>Feb. 2018 – Dec. 2023</i>
Technische Universität München <i>BSc Mechanical Engineering (Year Exchange Programme)</i>	Munich, Germany <i>Feb. 2021 – Mar. 2022</i>
Muir College Boys' Highschool <i>National Senior Certificate, 5 Distinctions (Aggregate - 85%)</i>	Kariega, South Africa <i>Jan. 2013 – Dec. 2017</i>

CERTIFICATIONS

Engineering Council of South Africa <i>Candidate Engineer</i>	Johannesburg, South Africa <i>Jul. 2025 – Present</i>
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EXPERIENCE

Artisan (Specialist) <i>Glencore Operations South Africa (Pty.) Ltd</i>	Jan 2025 – Present <i>Rustenburg, NW</i>
<ul style="list-style-type: none">Supported small PLC changes (Schneider Ecostruxure Control Expert): interlocks, permissives, analog scaling; maintained change notes and rollback plan.Updated HMI/SCADA views (Proficy HMI/SCADA - iFIX): tag wiring to PLC DBs, alarm/trend tweaks; improved operator fault-finding clarity.Site champion for IntelliPermit and RiskTalk digital permit/safety tools: training, weekly rollouts, adoption tracking.Led site-level implementation and evidence for Fatal Hazard Protocols (Energy Isolation, Working at Heights, Trackless Mobile Machinery, Lifting & Cranage) and ran Management Of Change reviews for engineering protocols.Ensuring safe lifting and cranage operations by completing Level 3 Risk Assessments, Lift Study, Crane Inspections, and lifting equipment checks in coordination with the riggerPerformed middle-management support functions by liaising with external vendor site managers and supervisors, engaging internal senior coordinators, and assisting in the coordination of a multidisciplinary artisan team (electricians, millwrights, boilermakers, fitters, instrumentation & cctv technicians).Facilitated upward and downward communication channels and supported the execution of plant-level management objectives.Coordinating and managing care & maintenance projects: From scope of works, to sourcing, site meetings, awarding orders, and part of approval chain for various functional cost locationsConducting almost daily onboarding inspections to ensure only roadworthy Trackless Mobile Machinery (TMM) that meet Glencore safety standards are permitted on site	

Engineer-in-Training

Jan 2024 – Dec 2024

Glencore Operations South Africa (Pty.) Ltd

Rustenburg, NW

- Conduct loop checks and device diagnostics for pressure/flow/level/temperature transmitters (4–20 mA/HART); verify ranges and signal integrity with E&I team.
- Coordinate vendor calibrations and maintain calibration schedules; update instrument index and as-built drawings after changes.
- Contributed to an **R5m+ SCADA upgrade** & **R5m+ CCTV upgrade** tender: wrote scope, shortlisted vendors, compiled tender pack; provided evaluation inputs.
- Improving data management and the data management architecture for Glencore Ferroalloys - Planned historian stack: market scan, stakeholder sessions, vendor engagements; laid groundwork for an enterprise historian model.
- Supported PLC/SCADA changes on plant equipment: interlocks/permissives, analog scaling, and HMI tag/alarms/trends updates.
- Owned damper actuator upgrade (pneumatic → electric): RFQ → vendor coordination → install / commissioning plan.
- Managed the introduction of a new centralized lifting equipment store, responsibilities include conducting management of change (MOC) process, project management, resource management, budget and schedule optimisation, health and safety requirements, and Fatal Hazard Protocols compliance
- Coordinated daily maintenance tasks, supervised and managed instrumentation and CCTV technicians - reviewed and signed-off risk assessments (JSA's), work permits, contractor files, and working at heights permits to mention a few
- Chaired daily GCOM meetings, focusing on safety, risk management, task management, and open communication

Instrumentation Engineer (Vacation Work)

Dec. 2022 – Jan. 2023

Glencore Operations South Africa (Pty.) Ltd

Rustenburg, NW

- Learned about the value chain of Glencore Rustenburg Smelter, by theoretical and practical exposure, from mining, Sintering Plant, Processing Plant (Smelter) and shipping of ferrochrome
- Successfully designed and simulated a PLC-based automated system that sequentially switches between a main and backup centrifugal fan - damper unit (a critical component in the ferrochrome manufacturing process)
- Sequenced main/backup fan changeover with interlocks on HMI; reduced manual interventions and improved changeover reliability under load.

Assembly Maintenance Engineer (Vacation Work)

June 2020 – July 2020

Volkswagen of South Africa (Pty.) Ltd.

Kariëga, EC

- Understanding vehicle manufacturing in detail including entire value chain
- Responded to maintenance breakdowns (hydraulics/robots) and implemented TPM improvements on work instructions.
- Performed fault-finding & programmed KUKA 6-DOF arm for glass/window placement
- Optimised existing maintenance work instructions and compiled process flow diagrams for work procedures
- Introduced and developed an automated inventory control program for a new maintenance equipment store

Mechatronics Engineer (Vacation Work)

June 2019 – July 2019

Volkswagen of South Africa (Pty.) Ltd.

Kariëga, EC

- Designed and implemented hydraulic & pneumatic technical circuits, and electrical & electronic technical circuits as solutions to multiple problem scenarios
- Analysed technical designs for points of failure, and utilised failure prevention methods to ensure design for safety adherence
- Programmed KUKA 6DOF industrial robot arm to perform various basic tasks

PROJECTS

Automation of Charge Chute Fans | CODESYS, Autodesk Inventor, Ladder Logic

Dec 2022 – Jan 2023

- Performed this project for Glencore Rustenburg Smelter as part of my vacation work
- Conceptualised, designed and visualised a mechatronic system using Autodesk Inventor
- Performed motor, gearbox and coupling selection using various manufacturer catalogues

- Implemented a control system for a programmable logic controller (PLC) using ladder logic in CODESYS
 - Implemented a SCADA (User Interface) for operating the system via CODESYS, and finally simulated the system
- Final-Year Project** | *3D printing, Fusion, Arduino, SQL, PHP, Html, Javascript, Git* Feb 2022 – Oct 2022
- Performed this project in partial fulfillment of my degree in Stellenbosch University
 - Conceptualised, designed, manufactured and assembled a modular waterproof temperature measurement system that withstood a high temperature and high pressure environment (assembled inside a water heater)
 - Developed technical mechanical drawings according to Stellenbosch, and ISO Standard - drawings were successfully used to manufacture the parts
 - Conceptualised, designed, manufactured and assembled a programmable circuit board (PCB) that served as a data acquisition system (DAQ) for the temperature measurement system
 - Developed technical electronic drawings according to Stellenbosch, and IEEE Standards - drawings were successfully used to manufacture the electronic circuit board
 - Implemented an Internet Of Things approach: Hosted a web-server using Heroku which streams temperature data in real-time from a MySQL database that is populated via an ESP32 Microcontroller connected to DS18B20 temperature sensors

SKILLS

Professional Skills: Project Execution • Change Control (MOC) • Project Management • Research & Data Analysis • Cross-functional communication • Problem Solving

Engineering Skills: Mechatronic (Mechanical, Electronics) Design • PLC Programming (Siemens TIA/Step7, Schneider Ecostruxure) • PID, Model-Based, Advanced Process Control • HMI/SCADA (WinCC, Proficy iFix) • Fieldbus: Profinet, Profibus

Engineering Tools: Siemens TIA Portal • WinCC • CODESYS • MATLAB/Simulink • Autodesk (Inventor, Fusion 360, Revit) • MS Project • SAP • Coupa • Isometrix

Programming Languages: Python • C • Ladder Logic • SQL • VBA • JavaScript/HTML/CSS

REFERENCES

Gerrie Fouche - Engineering Manager (Glencore Rustenburg Smelter): +27 84 813 2450

Don Smith - Instrumentation Superintendent (Glencore Rustenburg Smelter): +27 14 590 6119

Danie le Roux - Process Improvement Manager (Glencore Head-Office): +27 14 590 2341

Mohini Takoopasadh - Renewable Energy & Climate Change Engineer (Glencore Head-Office): +27 14 590 2396

Thulani Ntshanyana - Assembly Maintenance Engineer (Volkswagen of South Africa): +27 60 583 5165