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 | 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 — Pretoria, South Africa
BEngHons in Electronic Engineering (NQF 8) - Advanced Process Control — *Jan. 2025 – Present*

Stellenbosch University — Stellenbosch, South Africa
BEng Mechatronic Engineering (NQF 8) — *Feb. 2018 – Dec. 2023*

Technische Universität München — Munich, Germany
BSc Mechanical Engineering (Year Exchange Programme) — *Feb. 2021 – Mar. 2022*

Muir College Boys' Highschool — Kariega, South Africa
National Senior Certificate, 5 Distinctions (Aggregate - 85%) — *Jan. 2013 – Dec. 2017*

Certifications

Engineering Council of South Africa — Johannesburg,South Africa
Candidate Engineer — *Jul. 2025 – Present*

Experience

Artisan (Specialist) — Jan 2025 – Present
Glencore Operations South Africa (Pty.) Ltd — *Rustenburg, NW*

- 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 rigger
- Performed 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 locations
- Conducting 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. *Kariega, 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. *Kariega, 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 manufacturer 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 manufacturer 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): Available Upon Required (AUR)

Don Smith - Instrumentation Superintendent (Glencore Rustenburg Smelter): Available Upon Required

Danie le Roux - Process Improvement Manager (Glencore Head-Office): Available Upon Required (AUR)

Mohini Takoorpasadh - Renewable Energy & Climate Change Engineer (Glencore Head-Office): AUR

Thulani Ntshanyana - Assembly Maintenance Engineer (Volkswagen of South Africa): AUR