Athenkosi Hlonyane

Engineer-in-Training | Plant Engineering | Instrumentation & Automation
Rustenburg, North West • Open to Gauteng (Pretoria/Johannesburg)
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Professional Summary

I am a committed and practical Engineer-in-Training with a **Bachelor's degree in Mechatronic Engineering** and current registration as a Candidate Engineer with ECSA. My experience spans operations across mining & minerals processing plants, automotive manufacturing plants. I have worked in the Mechanical, Electrical, and Instrumentation departments. 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 have gained experience in multi-disciplinary team-based settings, I bring a logical mindset and leadership-by-example approach, and 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
Bachelor of Engineering Honours in Electronic Engineering (NQF 8) (APC Systems) — *Jan. 2025 – Present*

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

Technische Universität München — Munich, Germany
Bachelor of Science in 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*

Experience

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

- Appointed alternative champion for: FHP 1 - Energy Isolation, 2 - Working at Heights, 4 - Trackless Mobile Machinery, and 8 - Lifting and Cranage: leading site-level implementation and compliance with Fatal Hazard Protocols to ensure legal, procedural, and operational alignment
- Integrating SynergyX at the plant: Liaise with various departments: HRD, HSEC, and Engineering to update and rollout training content, Procedures, Mimimum standards, Risk Assessments and work instructions to align with SynergyX (Glencore Feroalloys Group Systems department) content
- Conducting Management of Change (MOC) processes and reviewing Engineering departmental documentation for accuracy and compliance
- Supporting FHP audits by preparing evidence and ensuring plant-wide system and implementation compliance
- Supporting contractor management by ensuring compliant working files, conducting PTOs and SIs, and participating in contractor GCOMs to address ground-level issues or escalate them to management
- Ensuring safe lifting and cranage operations by completing IBRAs, lift plans, 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 writing scope of works, completing capital application with head-office level approvals, conducting site meetings with vendors, liaising with planning department to create sourcing events, place 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
- Appointed plant champion for Intellipermit, supporting digital permit-to-work system implementation and compliance, and representing the plant in monthly intelliPermit Ferroalloys meetings
- Appointed Site Champion and Risk Assessment Representative for the RiskTalk digital safety solution rollout at Rustenburg Smelter. Serve as the primary point of contact for design and implementation activities, represent site interests during multi-site development discussions, lead pilot coordination, and support site-wide adoption and change management aligned with GCOM, Invocom, and risk assessment practices.

Engineer-in-Training Jan 2024 – Dec 2024

Glencore Operations South Africa (Pty.) Ltd *Rustenburg, NW*

- Improving data management and the data management architecture for Glencore Ferroalloys - Responsibilities include conducting market research for top Historian solutions, analysing data to establish a top 10, liaising with solution providers, scheduling meetings with various stakeholders, and establishing an Enterprise Data Historian as part of the ZA Data workgroup
- Part of ZA Python workgroup an established in-house python programming team - future responsibility include integrating and maintaining advanced process control at plant level through integration of digital twins
- Leading the replacement of a pneumatic cylinder with an electrical actuator for damper control at the bagplant, responsible for managing the entire project lifecycle from RFQ to installation when rolled out
- Acted as Instrumentation Superintendent in his absence, working with Engineering Manager, implementing a first-of-its-kind plant-wide CCTV upgrade project at Rustenburg Smelter, responsibilities include research, detailed scope writing, leading formal tender process (R5 million-plus project), HSEC compliance and stakeholder coordination
- Gaining experience in Formal Tender Process through leading a SCADA Software upgrade project (R5 million-plus project), responsibilities include detailed scope writing, identifying vendors, tender documentation process
- 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
- Designed and simulated a PLC-based automated system that sequentially switches between a main and backup centrifugal fan - damper unit
- The unit is considered a critical component in the ferrochrome manufacturing process
- Aim of project was to improve production efficiency to meet increasing demand by minimising downtime, and reduce manual intervention

Assembly Maintenance Engineer (Vacation Work) June 2023– July 2023

Volkswagen of South Africa (Pty.) Ltd. *Kariega, EC*

- Understanding vehicle manufacturing in detail including entire value chain
- Attended maintenance breakdowns - efficiently repaired and replaced various equipment and machinery during emergency shutdowns including hydraulic hoist cylinders in Decking Section and KUKA Robotic Arms responsible for placing Glass/Vehicle Windows
- Implemented Total Productive Maintenance (TPM) which is a preventative maintenance technique to prevent equipment failure and improving the manufacturing process
- 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 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: Accountability, Project Management, Research & Data Analysis, Cross-functional communication, Problem Solving
Engineering Skills: Mechanical Design, Mechatronic Design, PCB/Electronics Design, Internet of Things, PID controllers, PLC programming, HMI Development, Instrumentation
Engineering Tools: Microsoft Suite, Excel, MS Projects, Isometrix, SAP, Coupa, Autodesk (Inventor, Fusion 360, Revit), MATLAB/Simulink, SIEMENS TIA Portal, CODESYS
Programming Languages: C/C++, Python, VBA (Excel Macro's), Ladder Logic, Embedded C (Microcontrollers), ROS, Java, SQL, JavaScript, HTML/CSS

References

Contactable references available on request