# Application

| | |
|---|---|
| Call | SA/Germany (SAG-CORE) |
| Call Start Date | 01 September 2025 |
| Call End Date | 10 October 2025 |
| Reference | SASAG250915364814 |
| Title | Mr |
| Initials | ts |
| Name | tshingombe tshingombe |
| Email | tshingombefiston@gmail.com |
| ID/Passport Number | tircgog0091616 |
| Race | African |
| Gender | Male |
| Citizenship | Non-South African citizen |
| Organisation | South African Qualifications Authority (SAQA) |
| Birth Date | 10 October 1982 |
| Date Generated | 15 October 2025 09:55 |

# Table Of Contents

# CV

## Personal Profile

| | |
|---|---|
| ID/Passport Number<br>tircgog0091616 | Citizenship Status<br>Non-South African citizen |
| Country Of Birth<br>Democratic Republic of Congo | Current Country<br>Democratic Republic of Congo |
| Institution<br>South African Qualifications Authority (SAQA) | Position/Delegation<br>engineering |

| | |
|---|---|
| Race<br>African | Identity Type<br>Passport Number |
| Gender<br>Male | Identity Document<br>My CV _ NRF Connect orcide tshingombe.pdf |
| Institution Country<br>Democratic Republic of Congo | Passport Expiry<br>23-Apr-2026 12:00:00 AM |
| Research Expertise<br>Curriculum Policy and Management | Research Expertise Type<br>Field of Specialisation |

## Qualifications/Certifications

| | |
|---|---|
| Academic Level of Qualification<br>Bachelors | Study Fields<br>Energy studies |
| Name Of Degree/Diploma (e.g. PhD)<br>engineering | Institution<br>South African Qualifications Authority (SAQA) |
| Fulltime<br>Yes | Distinction<br>N/A |
| Date of First Registration<br>2024-03-14 | Completed<br>Yes |
| Highest Qualification<br>Yes | Date Obtained<br>2025-04-11 |
| Academic Record/Transcript<br>Professional Resume_CV - Atlantic International University 2.pdf | |

## Research Expertise

### Scientific Domain

Engineering

### Primary Research Fields

| | |
|---|---|
| Engineering sciences | Technologies and applied sciences |

### Secondary Research Fields

| | |
|---|---|
| Electrical Engineering | Education |
| Information and library science | |

### Field Of Specialisation

| | |
|---|---|
| African environment | Additive manufacturing |

| | |
|---|---|
| Industrial and economic sociology | Analytical Environmental Chemistry |
| Applied Chemistry - Membrane Technology | Nanostructured materials and packaging |
| Materials science and Engineering | 4th Industrial Revolution in the Construction Industry |
| Structural Geology | African oral literature |

## Student Supervision

| | |
|---|---|
| Title<br>Mr | Initials<br>tsh |
| Surname<br>tshingombe | Citizenship Status<br>South African citizen |
| Race<br>African | Gender<br>Man |
| Institution<br>South African Qualifications Authority (SAQA) | Level<br>Honours |
| Name Of Degree/Diploma (e.g. PhD)<br>tshingmbe | Is Fulltime<br>Yes |
| Supervised From<br>2025 | Supervised To<br>2025 |
| Role<br>Supervisor | Year First Registration<br>2023 |
| Is Completed<br>Yes | Year Awarded<br>2025 |

## Career History

| | |
|---|---|
| Type<br>Permanent appointment | Position<br>engineering electrical |
| Organisation<br>enginering electrical | Sector<br>Higher Education Sector |
| Is Current<br>Yes | Appointed From<br>2025-04-14 |

| | |
|---|---|
| Type<br>Awards and prizes | Sector<br>Higher Education Sector |
| Description<br>saqa award degree diploma | |

Type
Awards and prizes

Sector
Higher Education Sector

Description
engineering electrical science

# Research Outputs

## Summary

| | 2025 | 2024 | 2023 | 2022 | 2021 | 2020 | 2019 | 2018 | 2017 | Total |
|---|---|---|---|---|---|---|---|---|---|---|
| Articles in Refereed/Peer-reviewed Journals | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |

## Articles in Refereed/Peer-reviewed Journals

Output Title
Conservative and Semismooth Derivatives are Equivalent for Semialgebraic Maps

Title of Journal
Set-Valued and Variational Analysis

Authors
Damek Davis, Dmitriy Drusvyatskiy

Status
Published/produced

Year
2021

DOI
10.1007/s11228-021-00594-0

Output Title
master education technology rural implentation framework

ISBN Number
520-03-123456

Title of Journal
master education technology rural career thes

Volume
1900

Authors
tshingombe

Status
Attended

Publisher
atlantic

DOI
research thesist master doctoral

## Refereed/Peer-reviewed Conference Outputs

Output Title
https://github.com/Kananga5/Curriculum-section-1-1.1-Thesis.-Degree-honor-council-quality-rules-low-become-justice

ISBN Number
520

Contribution Title
engineering ts

| Proceeding Title | Authors |
| --- | --- |
| research thesis | tshingombe tshitadi |
| Status | Country |
| Attended | USA |

## Patents

| Application Date | Application Number |
| --- | --- |
| 2025-04-14 | 520520 |
| Full Title | |
| engineering master doctoral | |
| Grant Date | Grant Number |
| 2025-04-14 | 520520 |
| Description | |
| engineering rural master doctoral | |

Inventor

Poster
_____ 4.1 .12.1.Name of thesis : implementation and framework national qualification and national trade examination circulum experimental job theoretical pratical college and govern

| Application Type | Region |
| --- | --- |
| Continuing Application | South Africa |
| Status | |
| Granted | |

| Application Date | Application Number |
| --- | --- |
| 2025-09-15 | 30 |

Full Title

AUTHORY: TSHINGOMBE TSHITADI
CURRICULUM

Career Discovery Overview: RNF, AIU, NSF Learning Journey within the National Trade Framework Qualification in Electrical Engineering
Author: Tshingombe Tshitadi Fiston

�? ABSTRACT


Grant Date
2025-09-15

Grant Number
2

Description

AUTHORY: TSHINGOMBE TSHITADI
CURRICULUM

Career Discovery Overview: RNF, AIU, NSF Learning Journey within the National Trade Framework Qualification in Electrical Engineering
Author: Tshingombe Tshitadi Fiston

�� ABSTRACT
This paper explores the intersection of career discovery, open-access learning, and credential transparency within the context of electrical engineering. It synthesizes insights from RNF (Recognition of National Frameworks), AIU (Atlantic International University), and NSF (National Science Foundation) initiatives to scaffold a transdisciplinary learning journey aligned with South Africa’s National Trade Framework. The study proposes a modular, portfolio-driven approach to vocational education, integrating diagnostics, digital publishing, and global benchmarking.

�� SCOPE
• Electrical engineering education across formal, informal, and open-access platforms
• Credential alignment with SAQA/NQF, WA codes, and NSF SBIR/STTR frameworks
• Integration of AIU Guest Student modules into national qualification pathways
• Use of LMS, GitHub, and Internet Archive for portfolio documentation and career mapping
�� OVERVIEW
This work positions career discovery as a dynamic, data-driven process. It examines how learners can navigate trade qualifications through personalized learning paths, diagnostic assessments, and crede

Inventor

AUTHORY: TSHINGOMBE TSHITADI
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Career Discovery Overview: RNF, AIU, NSF Learning Journey within the National Trade Framework Qualification in Electrical Engineering
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�� ABSTRACT
This paper explores the intersection of career discovery, open-access learning, and credential transparency withiRetail library collections (e.g., CNA, Shoprite) do not include modular casebooks for trade readiness and mentoring, missing a critical opportunity to democratize technical education.”

�� Tips for Crafting Your Own
• Start with evidence or observation
• Define the gap or deficiency
• Highlight the impact on learners, educators, or institutions
• Point to the need for your specific solution
Would you like help drafting a custom problem statement for a specific funder or proposal section? I can also help you align it with your logic model or theory of change.

| Application Type | Region |
| --- | --- |
| Continuing Application | South Africa |
| Status | |
| Granted | |

Full Title

AUTHOR : TSHINGOMBE TSHITADI
CURRICULUM

Career Discovery: Security, Safety, Defense Facilitation, Government Bill Skill Development, CCMA Labour Levy, and Engineering Skill Integration
Author: Tshingombe Tshitadi Fiston
�� SCOPE
This document investigates the intersection of national security facilitation, labour policy, and engineering skill development. It integrates CCMA labour frameworks, government bill implementatiour

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AUTHOR : TSHINGOMBE TSHITADI
CURRICULUM

Career Discovery: Security, Safety, Defense Facilitation, Government Bill Skill Development, CCMA Labour Levy, and Engineering Skill Integration
Author: Tshingombe Tshitadi Fiston
�� SCOPE
This document investigates the intersection of national security facilitation, labour policy, and engineering skill development. It integrates CCMA labour frameworks, government bill implementation, and vocational engineering diagnostics to support career readiness and systemic reform in technical education.
�� DESCRIPTION
The framework explores how security and defence-related competencies—such as safety audits, infrastructure diagnostics, and policy facilitation—can be scaffolded into credentialed engineering pathways. It includes analysis of CCMA labour levy systems, government skill development bills, and modular engineering training aligned with SAQA/NQF standards.
�� OVERVIEW SUMMARY
• Security & Safety: Risk assessment, compliance audits, and infrastructure protection
• Defence Facilitation: Technical support roles in public safety and emergency systems
• Government Bill Skills: Implementation of national training mandates and levy-funded programs
• CCMA Labour Levy: Workforce regulation, dispute resolution, and skill funding mechanisms
• Engineering Skills: Modular diagnostics, signal processing, and infrastructure simulation
This overview supports a transdisciplinary career model that blends policy, diagnostics, and technical education.
�� DATA ANALYSIS
Domain Data Source Key Insights
CCMA Labour Records Dispute resolution logs Skill gaps in regulated sectors
Government Skill Bills Legislative archives Funding allocations and compliance
Safety Audit Reports Infrastructure diagnostics Risk mitigation and training needs
Engineering Training Logs LMS and GitHub CI/CD Credential mapping and skill indexing
�� INVESTIGATION
• Field analysis of CCMA dispute cases and skill levy outcomes
• Review of government bills on vocational training and safety compliance
• Diagnostic mapping of engineering modules to public safety roles
• Integration of security protocols into LMS and credential artifacts
⚖ ADVANTAGESUIREMENTS (South Africa & UK Cont

Inventor

Career11tf discovery job trade memo lecture learn note.docx 35 MB

Career10f discovery job trade memo lecture learn note.docx 170 KB

HBXUmm-k.pdf 272 KB

kzEoOz5g.pdf 215 KB

SARAO-HCD-Diploma-in-Engineering-Technology-Scholarship-Programme-2026-Application-Guide.pdf 140 KB

y4yEC4lC.pdf 181 KB

Career8 security safety policy defended faciltor gov bill skill developmen ccma labour levy.docx2.docx 200 KB

PSSPF_Complaint-Form-2025.Individual.pdf 271 KB

pro rnf excell vba.xlsx 1.4 MB

home affairs documents cvs-1.pdf 3.6 MB

Career8 security safety policy defended faciltor gov bill skill developmen ccma labour levy.docx2(1).pdf 959 KB

Ucpd tshingombe fiston(2).docx 27 KB

Career 6 experience discovery tshingombe tshitadi.docx 35 MB

Career9f discovery job trade memo lecture learn note.docx 161 KB

Career11tf discovery job trade memo lecture learn note.pdf 31 MB

# Application

## Top Research Outputs

Nothing Captured

## Basic Information

Call Grant Year
2026

Funding Years Requested
2

Descriptive Title
Career Discovery: Security, Safety, Defense Facilitation, Government Bill Skill Development, CCMA Labour Levy, and Engineering Skill Integration
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 INVESTIGATION
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• Review of

Short Title
career discovery defense facilitation government skill developent labour levy and

Institution
CSIR - Defence and Security

## Additional Information

# Career Discovery: Security, Safety, Defense Facilitation, Government Bill Skill Development, CCMA Labour Levy, and Engineering Skill Integration

**Author**: Tshingombe Tshitadi Fiston

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## ?? INVESTIGATION

- Field analysis of CCMA dispute cases and skill levy outcomes
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- Diagnostic mapping of engineering modules to public safety roles
- Integration of security protocols into LMS and credential artifacts

## ?? ADVANTAGES

- Aligns technical education with national security and labour policy
- Enables credentialed pathways for safety and defence roles

- Leverages government funding and CCMA frameworks for skill development
- Supports modular, standards-based engineering diagnostics

## ?? DISADVANTAGES

- Fragmentation between policy and technical training delivery
- Limited interoperability across government departments and training providers
- Challenges in mapping informal security roles to formal credentials
- Bureaucratic delays in bill implementation and levy disbursement

## ?? CONCLUSION & LITTÉRAIRE

This framework positions security, safety, and labour facilitation as integral to engineering education. By embedding government policy and CCMA mechanisms into credentialed learning, it enables a career discovery model that is modular, auditable, and nationally aligned. The theoretical foundation draws from:

- Labour economics and vocational policy
- Systems engineering and safety diagnostics
- Public administration and compliance auditing
- UNESCO TVET and SAQA/NQF frameworks

## ?? INVENTOR OUTCOME

| Artifact Type | Status | Credential Outcome |
|---|---|---|
| Safety Audit Templates | Completed | Indexed in LMS and GitHub |
| Labour Levy Flowcharts | Mapped | Supports policy facilitation |
| Engineering Diagnostic Logs | Validated | Credentialed via SAQA/NQF |
| Government Bill Modules | Drafted | Ready for LMS integration |

## ?? BIBLIOGRAPHIC RESOURCE


- CCMA Labour Frameworks and Annual Reports
- South African Government Skill Development Bills
- SAQA/NQF Qualification Guidelines
- UNESCO TVET Reform Publications
- Engineering Safety Audit Manuals

- GitHub CI/CD Credential Artifacts
- Internet Archive Portfolio Entries
- AIU Curriculum Design Resources

Would you like this scaffolded into a thesis chapter, LMS module, or credential artifact for publication and indexing? I can also help translate this into logigramme and algorigramme formats for executable diagnostics and policy simulation. Let’s modularize it for impact.

Name : tshingombe tshitadi fiston

Application

**Portfolio evidence skill development granted award certificate license bill legislation**

**Commencement ruling review cost referred dispute , storage inventory engineering relate skill agreement on job levy portal assessment order book case book order debtor creditor job financial execution sale tax bill**

# Student Support

Nothing Captured

# Details of Research

## Potential Impact and Outputs

### Career Discovery: Security, Safety, Defense Facilitation, Government Bill Skill Development, CCMA Labour Levy, and Engineering Skill Integration

**Author**: Tshingombe Tshitadi Fiston

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Name : tshingombe tshitadi fiston

Application

**Portfolio evidence skill development granted award certificate license bill legislation Commencement ruling review cost referred dispute , storage inventory engineering relate skill agreement on job levy portal assessment order book case book order debtor creditor job financial execution sale tax bill**

Table of Contents

## Problem Statement

### TITLE

**CAREER DISCOVER JOB TRADE MEMO LEARN NOTE**

**Author**: Tshingombe Tshitadi Fiston

### ?? SCOPE

This memo explores the intersection of career discovery, job trade evolution, and lifelong learning strategies. It serves as a diagnostic framework for educators, regulators, and learners to align technical competencies with credential-ready outcomes across modular curricula.

### ?? ABSTRACT

The document presents a transdisciplinary approach to career mapping and job trade analysis, emphasizing the integration of sustainability, compliance, and digital credentialing. It proposes a framework for transforming learning notes into portfolio artifacts, enabling transparent, standards-aligned career pathways.

### ?? DESCRIPTION

This memo functions as both a reflective and strategic tool. It captures the dynamic interplay between job market demands, curriculum reform, and credential

You're off to a powerful start, Tshingombe. Let’s continue building out the remaining sections with the same rigor and clarity you've established. Here's the next scaffolded portion of your memo:

### ?? OVERVIEW

This document synthesizes insights from curriculum architecture, regulatory frameworks, and workforce diagnostics to:

- Map career trajectories using WA-coded tasks and SAQA/NQF descriptors
- Translate job trade evolution into modular learning outcomes
- Embed sustainability and compliance into credential scaffolding
- Equip educators and learners with tools for portfolio-based evidence generation
- Align learning notes with LMS publishing standards and lifelong learning platforms

### ?? KEY WORDS

- Career Discovery
- Credential Scaffolding
- Job Trade Analysis
- Modular Curriculum
- WA Codes
- SAQA/NQF Alignment
- Sustainability Integration
- LMS Deployment

- Portfolio Artifacts
- Transdisciplinary Education

## ?? DATA ANALYSIS

The memo draws on diagnostic data from technical education sectors to:

- Identify gaps between curriculum delivery and credential visibility
- Benchmark learner progression against global competency standards
- Analyze job trade shifts in electrical engineering and sustainability domains
- Evaluate LMS integration efficacy for portfolio publishing
- Track credential uptake across institutions and regulatory bodies

## ?? RESOURCE DOCUMENTOR & BIBLIOGRAPHIC

Key references and documentation include:

- SAQA/NQF Level Descriptors and Qualification Guidelines
- Washington Accord Graduate Attribute Framework
- DHET Curriculum Policy and Compliance Manuals
- LMS Deployment Reports from Schneider Electric and Sci-Bono
- Open Access Publishing Platforms (DOAJ, ERIC, African Journals Online)
- AIU Doctoral Research Notes and Thesis Drafts (in progress)
- Technical Educator Training Modules and Portfolio Templates

## ? CONCLUSION

This memo reframes career discovery as a credential-driven, evidence-based journey. By integrating job trade diagnostics, sustainability imperatives, and digital credentialing into curriculum design, it empowers stakeholders to build transparent, standards-aligned learning ecosystems. The future of technical education lies in modularity, visibility, and lifelong relevance—where every learning note becomes a credential artifact, and every learner becomes a portfolio-ready professional.

---

# Rationale and Literature Review

### ?? 1. Career Center Discovery Framework

### ?? Education-to-Career Progression

A developmental pathway from grade school to professional roles:

- **Grade Levels**: Preschool → Grade 1–13 → Technical Education → TVET → University
- **Career Levels**: Minim → Cadet → Junior → Senior → Principal
- **Job Function Mapping**: Aligns job roles with grade levels and qualifications

### ?? Psychometric Assessment Services

- **Purpose**: Identify aptitudes, learning barriers, and career inclinations
- **Stages**:
  - School readiness
  - Neurodevelopmental assessments
  - Learning disorder diagnostics
  - Accommodation planning

### ?? 2. Life Stage Development (Ages 0–80)

### ?? Key Phases

- Early Childhood
- Scholastic Phase
- Career Exploration
- Lifelong Learning

### ?? School Readiness & Learning Support

- Physical and cognitive development
- Barriers to learning
- Assessment accommodations

**🔗 3. ICT & Technical Skills Academy (Sci-Boni)**

**🔗 Contact: it@sci-boni.co.za**

**🔗🔗 Youth Training (Ages 18–25)**

- **Courses**: CCNA, Linux, IoT, Python Essentials
- **Digital Literacy**: Word, Excel, Access, PowerPoint (Certiport Expert)
- **Accredited Programs**:
  - End User Computing
  - Technical Support
  - System Support

**🔗? Career Readiness Flow**

- Self-building technical future
- TVET pathways
- Engineering problem-solving
- Realistic, investigative, artistic, and social enterprise roles

**🔗? 4. Career Pathways by Sector**

**🔗 Skilled Trades & Engineering**

| Sector | Roles |
|---|---|
| Mechanical | Technician, Artisan, Quality Tester |
| Electrical | Panel Builder, Automotive Electrician |
| Civil | Carpenter, Tiler, Plumber, Builder |

**🔗 Career Personality Mapping**

- **Realistic**: Hands-on, mechanical, fixing
- **Investigative**: Analytical, scientific, logical
- **Artistic**: Creative, imaginative, expressive
- **Social**: Teaching, training, interpersonal
- **Enterprising**: Leadership, sales, decision-making
- **Conventional**: Organized, data-driven, procedural

**🔗 5. Career Resources & Media**

**🔗? Sources**

- Job libraries
- Career center publications
- Education & Science Department collaborations
- Magazines, newspapers, web portals

**🔗 6. Science & Technology Integration**

**🔗 Nanotechnology Module**

- Applications: Water purification, medicine, energy, mining
- Activities:
  - Build solar panels
  - Investigate mining impacts
  - Create posters (graded on creativity, clarity, originality)
  - Group work and experiments (e.g., gas detectors using nano wires)

**🔗 Scientific Method Practice**

- Formulate questions and hypotheses

- Design procedures
- Build circuits (e.g., pencil lead conductivity)
- Analyze data and write conclusions

**??? Printing & Documentation Tips**

- Select specific worksheet ranges for printing
- Ensure clarity and completeness in printed materials

Would you like help turning this into a formal curriculum, a presentation, or a proposal document? I can also help design worksheets, psychometric templates, or career mapping tools based on this structure.

Thanks for sharing this detailed and multifaceted project outline. It looks like you're mapping out a **career implementation and financial services deployment plan**, possibly tied to an ICT training initiative at Sci-Bono Academy. Let me help you organize and clarify the key components so you can move forward with confidence.

**?? Project Overview: Career Implementation & Financial Services**

**?? Timeline & Phases**

- **Start Date**: February 2025
- **Execution Phases**:
  - **Preliminary Phase**: Job trading setup
  - **Selection Phase**: Insurance and candidate filtering
  - **Finalization Phase**: Projection and reprojection
  - **Procurement Phase**: Vendor engagement and requisition

**?? Business Assumptions & Implementation Options**

**?? Proposed Phase 1: Product Database Setup**

- **Scope**: Process costs, database configuration, supplier onboarding
- **Advanced Procurement**: Early requisition and RFQ setup
- **Workflow**: 14 departments involved
- **Supplier Management**:
  - Update supplier emails
  - Configure GL accounts
  - Assign project costs
  - Create customer reports via report builder forms

**?? Financial Breakdown**

| Item | Amount (ZAR) |
|---|---|
| Requisition | R1,000 |
| RFQ | R10,000 |
| Purchase Orders | R10,000 |
| Supplier Invoice | R10,000 |
| Return to Supplier | R10,000 |
| Services | R100,000 |
| Master Data Preparation | R10,000 |
| Server + 10 Workstations | R10,000 |

| | |
|---|---|
| Report Builder Customization | Included in testing |
| Data Migration (Excel Import) | R1,000 |

### ⁂ Technical & Operational Setup

- **Installation**: 1 server, 10 workstations
- **Testing**: Included in consulting deliverables
- **Training**: To be provided by consulting team
- **Go-Live**: Operational deployment during project month
- **System Requirements**:
  - Backup devices
  - Operating system compatibility

### ⁂ Travel & Disbursement

| Item | Rate/Cost |
|---|---|
| Private Transport | R585 or R0.85/km |
| Flights, Taxis | Customer-specific |
| Travel Time & Insurance | Included |
| Accommodation & Subsistence | Included |
| Communication & Other | Included |

### ⁂ Data & Career Management Systems

### ⁂ Data Systems

- Salary database
- Bursary tracking
- Experimental job theory vs. practical

## Aims and Objectives

### ⁂ Title: *Drawing Analyse Design System*

**Author:** Tshingombe Tshitadi Fiston **Affiliations:**

1. Engineering & Education Technology, SAQA, Johannesburg, South Africa
2. Atlantic International University Online Library, Honolulu, Hawaii, USA

**Published:** 15 August 2025 **License:** Creative Commons Attribution (Open Access) **Asset ID:** 1120263 **Tracking ID:** 23330267

### ⁂ Abstract

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### ⁂ Keywords

- Engineering Drawing
- System Design

- Fault Diagnostics
- Rural Infrastructure
- Educational Technology
- SAQA/NQF Alignment
- WA Codes
- Compliance Modeling

### ⁂ Metrics

- Views: 12
- Downloads: 1
- File Size: 12.88 MB

### ⁂ Citation Format

Tshitadi, T. (2025). *Drawing Analyse Design System*. Atlantic International University Online Library. Open Access under CC BY License.

Would you like help expanding this into a full LMS module, educator guide, or credential artifact? I can also scaffold it into a course outline with assessment rubrics and SAQA/NQF descriptors. Let's make this a cornerstone of your portfolio.

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## ⁂ Title: *Drawing Analyse Design System*

**Author:** Tshingombe Tshitadi Fiston **Affiliations:**

- Engineering & Education Technology, SAQA, Johannesburg, South Africa
- Atlantic International University Online Library, Honolulu, Hawaii, USA

### ⁂ Scope

This paper presents a transdisciplinary framework for analyzing and designing technical systems using engineering drawings, fault diagnostics, and algorithmic modeling. It integrates visual logic, compliance principles, and modular curriculum design to support infrastructure development and educational reform.

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The study explores how drawing analysis and system design can be used to scaffold technical mastery, compliance auditing, and career development. It introduces a methodology that combines schematic interpretation, logigramme and algorigram principles, and SAQA/NQF-aligned learning outcomes. The framework supports educators, engineers, and regulators in building fault-tolerant systems and credential-ready portfolios.

### ⁂? Description

- **Drawing Analysis:** Interpretation of schematics, flow diagrams, and calibration maps
- **System Design:** Application of WA-coded diagnostics and modular engineering principles
- **Educational Integration:** Embedding drawing logic into LMS modules and assessment rubrics
- **Compliance Modeling:** Using visual systems to simulate fault detection and regulatory alignment

### ⁂ Keywords

- Engineering Drawing
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- Logigramme
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- SAQA/NQF
- WA Codes
- Portfolio Scaffolding
- Compliance Modeling
- Educational Technology

### ⁂ Data Analysis

- Comparative matrices of fault detection across rural and urban systems
- Calibration logs and schematic overlays
- LMS analytics on drawing-based assessment performance
- WA code mapping to drawing tasks and system outputs

### �� Interpretation

- Visual logic as a diagnostic tool
- Drawing systems as evidence of technical competency
- Integration of drawing analysis into trade theory and compliance audits
- Use of algorigram principles to simulate system behavior and fault recovery

### �� Logigramme & Algorigram Principles

- **Logigramme:** Flowchart-based logic for system behavior and decision-making
- **Algorigram:** Algorithmic representation of engineering processes and fault resolution
- Both are used to scaffold learning, simulate diagnostics, and align with SAQA exit-level outcomes

### �� Conclusion

Drawing analysis and system design are not just technical skills—they are pedagogical tools for career development, compliance assurance, and infrastructure reform. By embedding these principles into curriculum frameworks and LMS modules, educators can foster transparent, standards-aligned, and portfolio-ready learning experiences.

### �� Portfolio Integration

- Annotated schematics
- Fault code interpretation guides
- Calibration and tuning logs
- Compliance checklists
- Assessment rubrics
- Career development matrix aligned to SAQA/NQF descriptors
- LMS module showcasing drawing-based diagnostics and system design

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## Proposed Activities/Methodology/Work Plan

# Career Discovery: Security, Safety, Defense Facilitation, Government Bill Skill Development, CCMA Labour Levy, and Engineering Skill Integration

**Author**: Tshingombe Tshitadi Fiston

##  SCOPE

This document investigates the intersection of national security facilitation, labour policy, and engineering skill development. It integrates CCMA labour frameworks, government bill implementation, and vocational engineering diagnostics to support career readiness and systemic reform in technical education.

##  DESCRIPTION

The framework explores how security and defence-related competencies—such as safety audits, infrastructure diagnostics, and policy facilitation—can be scaffolded into credentialed engineering pathways. It includes analysis of CCMA labour levy systems, government skill development bills, and modular engineering training aligned with SAQA/NQF standards.

##  OVERVIEW SUMMARY

- **Security & Safety**: Risk assessment, compliance audits, and infrastructure protection
- **Defence Facilitation**: Technical support roles in public safety and emergency systems
- **Government Bill Skills**: Implementation of national training mandates and levy-funded programs
- **CCMA Labour Levy**: Workforce regulation, dispute resolution, and skill funding mechanisms
- **Engineering Skills**: Modular diagnostics, signal processing, and infrastructure simulation

This overview supports a transdisciplinary career model that blends policy, diagnostics, and technical education.

## ?? DATA ANALYSIS

| Domain | Data Source | Key Insights |
|---|---|---|
| CCMA Labour Records | Dispute resolution logs | Skill gaps in regulated sectors |
| Government Skill Bills | Legislative archives | Funding allocations and compliance |
| Safety Audit Reports | Infrastructure diagnostics | Risk mitigation and training needs |
| Engineering Training Logs | LMS and GitHub CI/CD | Credential mapping and skill indexing |

## ?? INVESTIGATION

- Field analysis of CCMA dispute cases and skill levy outcomes
- Review of government bills on vocational training and safety compliance
- Diagnostic mapping of engineering modules to public safety roles
- Integration of security protocols into LMS and credential artifacts

## ?? ADVANTAGES

- Aligns technical education with national security and labour policy
- Enables credentialed pathways for safety and defence roles
- Leverages government funding and CCMA frameworks for skill development
- Supports modular, standards-based engineering diagnostics

## ?? DISADVANTAGES

- Fragmentation between policy and technical training delivery
- Limited interoperability across government departments and training providers
- Challenges in mapping informal security roles to formal credentials
- Bureaucratic delays in bill implementation and levy disbursement

## ?? CONCLUSION & LITTÉRAIRE

This framework positions security, safety, and labour facilitation as integral to engineering education. By embedding government policy and CCMA mechanisms into credentialed learning, it enables a career discovery model that is modular, auditable, and nationally aligned. The theoretical foundation draws from:

- Labour economics and vocational policy
- Systems engineering and safety diagnostics
- Public administration and compliance auditing
- UNESCO TVET and SAQA/NQF frameworks

## ?? INVENTOR OUTCOME

| Artifact Type | Status | Credential Outcome |
|---|---|---|
| Safety Audit Templates | Completed | Indexed in LMS and GitHub |
| Labour Levy Flowcharts | Mapped | Supports policy facilitation |

| | | |
|---|---|---|
| Engineering Diagnostic Logs | Validated | Credentialed via SAQA/NQF |
| Government Bill Modules | Drafted | Ready for LMS integration |

## ?? BIBLIOGRAPHIC RESOURCE

- CCMA Labour Frameworks and Annual Reports
- South African Government Skill Development Bills
- SAQA/NQF Qualification Guidelines
- UNESCO TVET Reform Publications
- Engineering Safety Audit Manuals
- GitHub CI/CD Credential Artifacts
- Internet Archive Portfolio Entries
- AIU Curriculum Design Resources

Would you like this scaffolded into a thesis chapter, LMS module, or credential artifact for publication and indexing? I can also help translate this into logigramme and algorigramme formats for executable diagnostics and policy simulation. Let's modularize it for impact.

Name : tshingombe tshitadi fiston
Application
**Portfolio evidence skill development granted award certificate license bill legislation Commencement ruling review cost referred dispute , storage inventory engineering relate skill agreement on job levy portal assessment order book case book order debtor creditor job financial execution sale tax bill**

---

## Transformation

## ?? Title: *Drawing Analyse Design System*

**Author:** Tshingombe Tshitadi Fiston **Affiliations:**
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**Published:** 15 August 2025 **License:** Creative Commons Attribution (Open Access) **Asset ID:** 1120263 **Tracking ID:** 23330267

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### ?? Keywords

- Engineering Drawing
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## Anticipated Outputs

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## Alignment to National Imperatives

| Type | Sub-Type |
| --- | --- |
| NRF Broad Category | Engineering |

Justification for Selection

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?? Title: Drawing Analyse Design System
Author: Tshingo

## Data Management and Utilisation

Nothing Captured

# Science Engagement

Category
Education and/or training interventions (including both formal and informal education-based initiatives, new curriculum content, product development, etc)

Intended Engagement With Audience



Table of Contents

| Science Engagement Intended Audience | Engagement To Be Undertaken |
|---|---|
| Industry professionals | engineering support development |

Plan To Assess Broader Impact



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## Application Support Input

| Role | Initials |
|---|---|
| Co-investigator | ts |
| First Name<br>tshingombe | Surname<br>tshingombe |
| Email<br>tshingombefiston@gmail.com | Has Responded<br>No |

# Human Capacity Development

Comment On EDI Consideration


�� Title: Drawing Analyse Design System
Author: Tshingombe Tshitadi Fiston Affiliations:
1. Engineering & Education Technology, SAQA, Johannesburg, South Africa
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| | |
|---|---|
| Human Capacity Development Candidate<br>Already nominated | Level Of Qualification<br>Postdoctoral |
| Name Of Candidate<br>tshingmbe tshitadi | Role In The Project<br>engineering development suport |
| Year<br>2026 | |

## Participating Member

| | |
|---|---|
| Role<br>Principal Investigator | Title<br>Mr |
| Initials<br>tsh | Surname<br>tshingombe |
| Name<br>tshitadi | Institution<br>South African Qualifications Authority (SAQA) |
| Country<br>South Africa | Email<br>tshingombefiston@gmail.com |

Description Of Role In Project


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• SAQA/NQF


| | |
|---|---|
| Citizenship Status<br>South African citizen | Research Expertise<br>Engineering skills and competencies |

Anticipated Outputs


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Published: 15 Auguplication

| |
|---|
| Type Of Collaboration<br>Continuation |

## Requested Financials

Nothing Captured

## Attachments

Submission Document
EXCELL UserForm1TSHIN.frm FORM.pdf 2.pdf34.frx5.pdf

Attachment Document Type
Budget Division of the South African Team

Submission Document
EXCELL UserForm1TSHIN.frm FORM.pdf MATERIAL INSTALLER.pdf

Attachment Document Type
Budget Division of the South African Team

Submission Document
EXCELL UserForm1TSHIN.frm FORM.pdf MATERIAL INSTALLER.pdf 2 CALCULAR HARDWARE.pdf

Attachment Document Type
Budget Division of the South African Team

Submission Document
EXCELL UserForm1TSHIN.frm FORM.pdf MATERIAL INSTALLER.pdf, multimeter.pdf

Attachment Document Type
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Submission Document
EXCELL UserForm1TSHIN.frm multimetering measure.pdf

Attachment Document Type
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Submission Document
EXCELL UserForm1TSHIN.frm plc.pdf

Attachment Document Type
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Submission Document
EXCELL UserForm1TSHIN.frm,student data.pdf

Attachment Document Type
Budget Division of the South African Team

Submission Document
EXCELL VBA.pdf

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Submission Document
f9999.pdf

Attachment Document Type
Budget Division of the South African Team

Submission Document
form 992.pdf

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form 992.pdf1.pdf

Attachment Document Type
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Submission Document
form 994.pdf

Attachment Document Type
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Submission Document
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Submission Document
form 9991.pdf

Attachment Document Type
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form 99230000.pdf

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Submission Document
form total excell project tshing.pdf

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Budget Division of the South African Team

Submission Document
TRADE THEORY AND PRATICAL TOOLS LAB WORKSHOP MANUFACTURE.pdf

Attachment Document Type
Supporting Documents

Submission Document
tshingombe rural energy Items written by EN0202272ID_ Elektor _ Elektor Magazine.pdf

Attachment Document Type
Supporting Documents

Submission Document
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Attachment Document Type
Supporting Documents

Submission Document
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Attachment Document Type
Supporting Documents

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Submission Document
tshingombe Items written by EN0202272ID_ Elektor _ Elektor Magazine.pdf

Attachment Document Type
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## Reviewer

| | |
|---|---|
| Reason for excluding this reviewer<br>engineering | Type Of Reviewer<br>Excluded Reviewer |
| Title<br>Mr | Surname<br>tshingombe |
| Initials<br>ts | First Name<br>tshingombe |
| Email Address<br>tshingombefiston@gmail.com | Institution<br>South African Qualifications Authority (SAQA) |

## Provisional Financial Summary

Consortium

�� Title: Drawing Analyse Design System
Author: Tshingombe Tshitadi Fiston Affiliations:
1.

| | |
|---|---|
| In Kind Financing<br>200000000 | Seeking Funding From<br>National Research Foundation (NRF) |
| Total Budget Per Funder<br>200000000 | Total Requested Budget<br>2000000000 |
| Year Four Amount<br>20000000 | Year One Amount<br>10000000 |
| Year Three Amount<br>200000000 | Year Two Amount<br>2000000 |

## Other Sources of Funding

| | |
|---|---|
| Amount<br>400000 | Funding Source Type<br>Private Sector |
| Nature Of Contribution<br>engineering | Source<br>1 |

Year
1

## Ethical Clearance

Does Project Require Ethical Clearance
Yes

Has Ethical Clearance Obtained
Yes

Academic record/transcript
trade electrical theoretical practic form tshing.pdfsubstation transmission workbase experiemental carer ,.pdf

Academic record/transcript
trade electrical theoretical practic form tshing.pdfsubstation transmission workbase experiemental carer ,.pdf

Additional Comments
enginering

## Preferred Panel

Discipline
Computer Science and Information Systems

Primary Panel
Multidisciplinary

Secondary Panel
Engineering (ENG)