

Dear fiston,

Here is the copy of the Project Pitch with reference number : **00098889** submitted to the **Energy Technologies (EN)** on **2/25/2025**.

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5. Company Name

Engineering electrical tshingombe

6. Company Zip Code

10300

7. Company State

AR

8. Company Website

<https://github.com/Kananga5/Curriculum-section-1-1.1-Thesis.-Degree-honor-council-quality-rules-low-become-ju>

9. SBIR/STTR topic that best fits your projects technology area

Energy Technologies (EN)

Are you eligible and interested in being considered for the NSF Fast-Track program?

Yes

Please provide details of the NSF research funding relied upon to meet the eligibility requirements, including: NSF research award number(s); the proposing company personnel involved in each of the listed research awards and their roles in the research awards; and a brief explanation of how the cited research funding relates to the proposed Fast-Track project. (up to 150 words)

Thesis. Degree honor, council quality rules low become justice development court and labor relations conciliation mediation, Engineering electrical trade research policy skill ,safety security order develop ,defense order

1 .1.1 \*Thesis:

\* Research policy

trade theory minimum : legislation skill development :

\*1.1.2Education technology,: Education engineering relate low manufacture ..

Degree honorable ; college low labor justice ,

\* Low relate literature traditional African LTA practical low rules African

Convert unite international relate low rules European American curent in unity language culture African rules

Please provide details of the customer discovery training relied upon to meet the eligibility conditions, including: a description of the customer discovery training program(s), with corresponding dates and award number(s) or other program identification details; a description of the technology in relation to which the customer discovery was undertaken, and a summary of the customer discovery findings. (Up to 250 words)

Thesis. Degree honor, council quality rules low become justice development court and labor relations conciliation mediation, Engineering electrical trade research policy skill ,safety security order develop ,defense order

1 .1.1 \*Thesis:

\* Research policy

trade theory minimum : legislation skill development :

honorable member certificate transcript outcome award

\*overview : journal

\* Key :

\* Background:

\*1.1.2Education technology,: Education engineering relate low manufacture ..

Degree honorable ; college low labor justice ,

\* Low relate literature traditional African LTA practical low rules African

Convert unite international relate low rules European American curent in unity language culture African rules

Low EIC, rules cebec rules ,UNESCO rules culture American culture NPA , , accountability cultural science mathematics,Conte law USA ,UK Australia ,national rules RSA sabs sans rules .

\*College and university low Engineering rules :

Registration of low rules low congre low rules master cpd continue developing skill master degree ,diploma continue topics rules ,unity translate in African traditional mathematics usuel and Scotland UK land UK and African land low rules integration reintegration accountability research recharge system education technologie education technical career and vocational career trade training trainer facilitator moderator low assessor

Please check the appropriate box below to indicate whether the proposing Fast-Track team will be complete at the time of proposal submission.

Yes

10. Is this Project Pitch for a technology or project concept that was previously submitted as a full proposal by your company to the NSF SBIR/STTR Phase I Program – and was not awarded ?

Yes

Please provide the Proposal Number of the previously submitted full NSF SBIR/STTR Phase I proposal ?

1234568

Have you contacted the associated NSF SBIR/STTR Program Officer, via email or phone, to discuss this prior full proposal submission?

1.1 introduction : framework experimental nated ncv combination  
Nated combination irregularity policy management system information  
workbase experimental facilities moderator p

\*1.3.2..3 Overview career libraries ,mentor facilitator library research  
method book .

Low congre library,

\*1.3.2..3.

3.1Key: about library research centre the mission of the low library of  
congress is to provide authoritative legal research , reference and  
instructions service and access to an resolved.

Established 1832 low library has a collection of over ,2,9 million  
volumes spanning all systems and period of low and government all the .

\* The library of congress provides congress admnister the national  
copyright system and manage the largest collection of book recording ,  
photography maps ,16 years authority record .

\* Administration commercial ,low environment criminals low procedure  
intelligence , property legal , .

\* Broken down research court record .

\* Grant proposal : non profit grant proposal date submission grant  
submitted to asresss

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1.3.2..3.4.request for proposal :

4.1\* education technology ,and master engineering electrical a,  
Education Technical career Engineering .

\*REP. |. Proposal | compagny

- 4.2 .project overview :

- 4.3 .project goals :

-4.4.scope of work :

-4.5 .current roadblocks and bariere.

- 4.6.evaluation metric and .

-4.7. submission requirements.

- project due |. Date. | Budget amount

-Contact : email.

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1.3.2..3..1.\*Overview: national skill fund ,,and national research  
fund. Career proposal

-1.2\*dealine : local Engineering study in workplace jhb RSA. Pretoria

Midrand. To

UK and USA ,10 December 2024.

- 1.3\* time frame : 5 years ,to 2 years
  - 1.4\*limitations : principal career proposal career compte.
  - 1.5\* submission by : Aiu research and. ,dhet saqa.
  - 1.6\* instruction : pdf proposal and award policy ( PAPPGG),NSF... ,proposal certificate congre archive internet library Award compagny. Aware , ,saqa aware ,dhet aware ,college aware.
  - 1.7.\* minimum budget : 40000.0000 total program officer budge except. Google budge apple
  - 1.8\* eligibility:
    - \* Requirements : as of application ,hold degree field engineer trainee, provide award type .
  - preparatorion :
- 1.10.Review faculty early development:. allocation note:.

- 
- |documents| require|requirements|NSf
  - cover projet | yes | begin withcareer|N/a
  - project summary| y|following | N/a
  - project descript| y |. | N/a
  - result from | yes |.
  - budget and|
  - facilitator.|
  - senior person|
  - bibliography.|
- Card board
- supplemtaire.
  - past doctoral.
  - research.

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1.3.2..3.1.11. project description : .

- 1.11.1 proposal sect research :
- 1.11.2. rational :
- 1.11.3. preliminary :
- 1.11.4 .data appropriate :
- 1.11.5.literaire where appropriate :
- 1.11.6. hypothesis overall :
- 1.11.7. questions research :
- 1.11.8 .description propose education activity integration:
- 1.11.9. description team and experience and expertise argument lock.
- 1.11.10. research / Education relevant for your career trajectory goal..
- 1.11.11 . limitations : conting plans .
- 1.11.12 . Expected outcome .
- 1.11.13. Definition of project of scussful .
- 1.11.14 distribution / delivery time research .

1.11.14. measure planned or possibility resulted ...

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11. Has your company received a prior NSF SBIR or STTR award?

No

12. Does your company currently have a full Phase I SBIR or STTR proposal under review at NSF?

Yes

13. Briefly Describe the Technology Innovation?

level disciplinary

1.2 .problem statement :

Implementating framework qualification system agreement statement over stay system education technologie and technical vocational engineering field in Engineering lecture and assessor conducted learner need to print in time outcome information and quickly statement ..of review marked and remarking

- purpose of study : research advanced field and research basic essential field system rurale need to implementating in new system. Energy of education technology era system council adoption low rules statement college distance learning courses subject issue teacher design framework and work framework with learner job. Team ..

1.3 .2 rational : idea logic approach methodic disciplinary hearing duty system of institution vocational and system management system information need resolved , idee job fractinel evidence low design information management system instituts police no meeting equivalent national exam and statement of result research out mark druiup reason additional information irregularity system need to make reason quotion of job learner lecture agreement of same compensation insurance for aware certificate compliance hr resource to recognise certain factor idee no to monopolies education system but democratic liberalism of certain factor in examination criterial of course private system industrial..

-1.5 background to the study :

Ireviewed and over view system agreement continue framework attandance rurale school college time table more less agreement system policy academic organisation of national trade faculty and national framework qualification system internal working base system need to quickly factor policy dhet cat council award challenge policy college academic with engineering system theory and combination factor need theory to be agreed with internal

14. Briefly Describe the Technical Objectives and Challenges?



power Systems and Renewable Energy

Optimization of Microgrid Systems

- oInvestigating AI-driven optimization for hybrid renewable microgrids.

- oCase study on cost-benefit analysis of microgrids in remote areas.

Smart Grid and Energy Storage Technologies

- oEnhancing demand response strategies using machine learning.

- oOptimization of battery energy storage for grid stabilization.

Wireless Power Transmission

- oDeveloping high-efficiency resonant inductive coupling systems.

- oApplications of wireless power transfer in electric vehicles.

## 2. Control Systems and Automation

AI-Based Predictive Maintenance in Industrial Systems

- oMachine learning for fault detection in power transformers.

- oPredicting failures in rotating machinery using deep learning.

Advanced Robotics and Control Algorithms

- oAdaptive control for autonomous robotic arms.

- oPath optimization algorithms for multi-agent robotic systems.

IoT-Based Smart Home Automation

- oImplementing AI-driven smart home systems for energy efficiency.

- oSecure communication protocols for IoT-based automation.

## 3. Embedded Systems and Internet of Things (IoT)

Edge Computing for IoT Devices

- oImplementing real-time AI inference in low-power embedded systems.

- oOptimization of edge computing frameworks for industrial IoT.

Wearable Health Monitoring Devices

- oDeveloping ECG monitoring using flexible sensors and AI analysis.

Low-power IoT solutions for real-time health monitoringomakers to create a robust, effective vocational education system

: Framework for Vocational Education with a Focus on NATED and NCV

Integration in South African Colleges

This topic can explore the integration and implementation of frameworks for vocational education, particularly the National Diploma (NATED) and National Certificate (NCV) qualifications within South African colleges. The research would focus on how these systems can be effectively combined to address challenges in vocational education, experimental facilities, policy irregularities, and workplace-based learning.

Introduction to the Framework for Vocational Education

Overview of NATED and NCV

- oThe National Diploma (NATED) and National Certificate (NCV) are the two key qualifications within South African vocational education, designed to enhance the employability of students.

- oThe NATED qualification offers a more academic-based approach, while the NCV focuses on practical skills training aligned with specific trades.

Objective of Combining NATED and NCV

oObjective: Explore how combining the NATED (academic) and NCV (practical) systems can provide a more comprehensive, holistic vocational education model.

oGoal: Enhance industry readiness and workplace skills by addressing policy inconsistencies, improving management systems, and ensuring strong work-based learning components

. Experimental Framework and Integration

Experimental Approach:

oIntroduce experimental frameworks to ensure both theoretical knowledge and practical skills are addressed.

oImplement real-world case studies, hands-on training, and industry feedback mechanisms to ensure the combination of theoretical and practical education is balanced.

Curriculum Structure:

oDesign curriculum modules that address both theoretical coursework (NATED) and practical skills (NCV).

oProvide a blended learning approach that mixes online learning, classroom lectures, and workplace training.

## 15. Briefly Describe the Market Opportunity?

Project Description (Research Proposal Structure)Project Description (Research Proposal Structure)

### 1.1 Proposal Section Research

Objective: This section should outline the primary aim of your research. It should highlight the problem you aim to solve or the gap in knowledge that your research will address.

oExample: "This research will explore the integration of machine learning in electrical power systems to improve efficiency in load shedding management."

### 1.2 Rationale

Why this research is important: Justify why the research is valuable, its social, economic, or scientific impact. Provide insight into the relevance of the study in your field.

oExample: "The study will provide solutions to the critical issue of power supply reliability in developing countries, where load shedding impacts industrial productivity."

### 1.3 Preliminary Research

Literature Review: Highlight key findings from previous studies in your field. This shows what existing research is available and where your work fits within it.

oMention gaps, contradictions, or opportunities that your research will address.

## 16. Briefly Describe the Company and Team?

### 1.8 Proposed Educational Activity Integration

How this research integrates with education: Discuss how this project can be used in educational settings, either through curriculum development, workshops, or by providing a learning opportunity for students.

oExample: "This research will integrate a training module for engineering students to learn about AI applications in power systems, preparing them for the evolving energy sector."

### 1.9 Team Description and Expertise

Research Team: Outline the qualifications, experience, and expertise of the people working on the project.

oExample: "The team will consist of Prof. X, an expert in machine learning, and Dr. Y, an electrical engineer specializing in power systems optimization."

### 1.10 Research/Education Relevance for Career Trajectory

Link to Career Goals: Explain how this research fits into your personal career aspirations. Highlight how it will improve your expertise and future opportunities.

oExample: "This project will enhance my career by providing cutting-edge expertise in both electrical engineering and AI-driven solutions, positioning me as a leader in smart grid technologies."

### 1.11 Limitations: Contingency Plans

What limitations exist in your study and how you plan to address them. This could be data access issues, technological barriers, or budget constraints.

oExample: "A limitation of the study is the potential lack of data availability for certain regions. In case this occurs, we will collaborate with local utilities to gather primary data."

### 1.12 Expected Outcome

What you hope to achieve: Outline the expected results and the impact these could have in your field.

oExample: "W

## 17. How did you first hear about our program?

University tech transfer, VPR, or other administrative office

## **NSF SBIR/STTR Phase I Eligibility Information:**

In addition to receiving an invitation to submit a full proposal from the NSF SBIR/STTR Phase I Program based upon the review of their submitted Project Pitch, potential proposers to the program must also qualify as a small business concern to participate in the program (see SBIR/STTR Eligibility Guide for more information).

The firm must be in compliance with the SBIR/STTR Policy Directive(s) and the Code of Federal Regulations (13 CFR 121).

- Your company must be a small business (fewer than 500 employees) located in the United States. Please note that the size limit of 500 employees includes affiliates.
- At least 50% of your company's equity must be owned by U.S. citizens or permanent residents, and all funded work needs to take place in the United States (including work done by consultants and contractors).
- Primary employment is defined as at least 51 percent employed by the small business. NSF normally considers a full-time work week to be 40 hours and considers employment elsewhere of greater than 19.6 hours per week to be in conflict with this requirement.
- The Principal Investigator needs to commit to at least one month (173 hours) of effort to the funded project, per six months of project duration.

*For more detailed information, please refer to the SBIR/STTR Eligibility Guide by using [https://www.sbir.gov/sites/default/files/elig\\_size\\_compliance\\_guide.pdf](https://www.sbir.gov/sites/default/files/elig_size_compliance_guide.pdf). Please note that these requirements need to be satisfied at the time an SBIR/STTR award is made, and not necessarily when the proposal is submitted.*