

## **CV for Dr. Busiso Mtunzi**

**Executive Dean;-Faculty of Engineering, Senior Lecturer,  
Department of Electronic Engineering, National University of Science and Technology**

Place and Date of Birth :- Chiredzi 01-10-1967

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No: +263716583271

### **EDUCATION**

<i>Dates Attended</i>	<i>Institution &amp; Location</i>	<i>Degree Conferred</i>	<i>Major Subject</i>
2009– 2013  Agriculture.	University of Fort Hare Faculty of Science &	Doctorate of Philosophy (Physics)	Renewable Energy (Photovoltaic Thermal System)

*Dissertation title: Design, implementation and evaluation of a directly water cooled photovoltaic- thermal system.*

2001 - 2002	University of Zimbabwe Faculty of Engineering	Master of Science Degree in Renewable Energy	Renewable Energy
1989 – 1992	University of Zimbabwe Faculty of Science	Bachelor of Technology Honors Degree in Applied Physics (BTAS)	Physics

### **SPECIALIZED TRAINING**

<i>Dates Attended</i>	<i>Institution &amp; Location</i>	<i>Diploma Conferred</i>	<i>Major Subject</i>
1997– 1998	Gweru Polytechnic	Diploma in Vocational and Technical Education	Education

### **PROFESSIONAL MEMBERSHIP**

<i>Dates Effective</i>	<i>Membership</i>
2010-Present	South African Institute of Physics (SAIP) Membership Number : 201145
2021-Present	Association for Renewable Energy Practitioners (AREP) Member Number: ARP101335
2022- Present	Institute of Electrical and Electronic Engineering Member Number Under Registration :- IEEE 95345315.

### **PRINCIPAL POSITIONS HELD**

<i>Dates Held</i>	<i>University/College, Location</i>	<i>Title</i>
2022-date	National University of Science and Tech	Executive Dean Faculty of Engineering
2015-date	National University of Science &Technology, Zimbabwe	Senior Lecturer & Departmental Chairperson
2007- 2008	National University of Science &Technology Zimbabwe	Chairperson Electronic Engineering Department.
2004- 2014	National University of Science &Technology Zimbabwe	Lecturer
1996 – 2004	Bulawayo Polytechnic Electrical Engineering Zimbabwe	Principal Lecturer & Lecturer in Charge
2003 – 2004	Solusi University Computer and Management	Adjunct Lecturer

2002 (Jan-Jun)	Information Department Zimbabwe Hippo Valley Estates Power Plant Zimbabwe	Power Plant Graduate Engineer
1993 – 1996	Matopo Secondary School Ministry of Education Zimbabwe	Physics and Mathematics Teacher
2009-2013	Elukhanyisweni High School & Inyibiba High School SA	Physical Science, Natural Science and Maths Educator

## HONORS AND AWARDS

Date	Award
2008-2013	Awarded a bursary to study for PhD in Physics at University of Fort Hare by Fort Hare institute of Technology.
June 1992 2008	Awarded the Vice Chancellor's Merit Award for Outstanding performance in University Service. Dec TREE Project:-Transfer Renewable Energy & Efficiency (meant to facilitate transfer of know how in renewable energy technologies, energy efficiency and climate protection) Berlin, Germany.

## I. SCHOLARSHIP PUBLICATIONS

### ORIGINAL JOURNAL ARTICLES PUBLISHED IN JOURNALS AND CONFERENCE PROCEEDINGS

1. Mtunzi, B. and Meyer, E.L., (2018). Reliability of Directly Cooled PV/T System. 2018 International Conference on Multidisciplinary Research (MyRes), 82-93.
2. Mtunzi, B. and Meyer, E.L., (2014). Benchmarking of the SW80 Polycrystalline silicon modules using the sun as source of light. Thermal Science International Scientific Journal 18(2), S317-S322
3. Mtunzi, B. and Meyer, E.L., (2012). Comparative study of a directly cooled PV water heating system to a naturally cooled module in South Africa. Photovoltaic Specialists Conference (PVSC), 2012 38th IEEE pp. 001296 - 001299.
4. Mtunzi, B., Meyer, E.L., Simon, M. and Malape, M.A., (2012). Variations in the I/V Characteristics of Directly Water Cooled and Naturally Cooled PV Modules. 27th European Photovoltaic Solar Energy Conference and Exhibition, pp 3992 – 3996. ISBN: 3-936338-28-0.
5. Mtunzi, B., Mampwheli, N., Meyer, E.L., and Mungwena, W., (2012). Bagasse based co-generation at Hippo Valley Estates in Zimbabwe. South Africa Journal of Energy in South Africa, Vol 23, No 1, pp. 15-22
6. Mtunzi, B., Meyer, E.L. and Simon, M., (2015). Thermal and Electrical Energy Yield analysis of a directly water cooled Photovoltaic Module. Thermal Science International Scientific Journal .19 (2), S547-S555.
7. Mtunzi, B., Meyer, E.L., (2015). Design and Implementation of a direct cooled PV/T system. Journal of Engineering, Design and Technology, 13(3) , 369-379.
8. Mtunzi, B., Meyer, E.L. and Simon, M., (2011). Investigating the thermal performance of a hybrid photovoltaic solarsystem, In Proceedings of SAIP2011, the 56<sup>th</sup> Annual Conference of the South African Institute of Physics, Edited by I Basson and A. E Botha (University of South Africa, Pretoria, 2011), pp. 694-700. ISBN: 978-186888-688-3 Available online at <http://www.saip.org.za>
9. Mtunzi, B., Meyer, E.L. and Simon, M., (2012). Performance monitoring of a photovoltaic thermal collector. 57<sup>th</sup> Annual Conference of the South African Institute of Physics. Paper under review.
10. Mtunzi, B., Chamisa, M., Nyathi Z.M., Gonye, R., Mugarisanwa, F.N., (2016) Centralised Incubator Control System. Zimbabwe Journal of Science and Technology Vol. 11, 12-27.

11. Mtunzi, B., Meyer, E.L. Reliability of a Directly Cooled PV/T System. 2018 International Conference on Multidisciplinary Research (MyRes), 82-93.
12. Mtunzi, B., Gavhu, T.S., Nyathi Z.M., Gonye, R. Design and Implementation of an Automatic Electrical Motor Protection. 2018 International Conference on Multidisciplinary Research (MyRes), 120-134.

## CONFERENCE PAPERS

1. Mtunzi, B. and Meyer, E.L., (2010). Thermal performance of a Photovoltaic Water heating System (PVWHS). 55<sup>th</sup> Annual Conference of the South African Institute of Physics (SAIP).
2. Mtunzi, B. and Meyer, E.L., (2009). Thermography analysis of hot Spots on a PV module. 54<sup>th</sup> Annual Conference of the South African Institute of Physics (SAIP).
3. Mtunzi, B. and Meyer, E.L., (2012) . Energy supply for sustainable tourism in South Africa . University of Fort Hare/National Department of Tourism student mini conference at the University of Fort Hare on the 26<sup>th</sup> September 2012.

## DEPARTMENTAL SPONSORSHIPS

Dates	Funding Agency, Department or Institute
2022	Tasked by the national utility company (Zimbabwe Electricity Supply Authority) to train its Electrical Technicians on Solar Installations to help install solar systems in the rural areas, (2000 to be trained)
2019	Royal Academy Engineering Higher Education Partnership in Sub Saharan Africa (HEPSSA) worth £8045 for NUST Zimbabwe (Spoke)
2007	Siemens Competition sponsored by Siemens in South Africa (We were awarded equipment worth R100000). Its being used in the department for learning purposes.
2008	Bern University of Applied Sciences (BFH) Switzerland:- Microlab in the EE Department.

## II. TEACHING

### COURSES TAUGHT at NUST

Code	Course
TEE 2202	Electronic Drives
TEE 1203	Electronic Devices and Circuits
TEE 1241	Electrical Measurements
TEE 2205	Professional Engineer
TEE 3203	Design and Project Part 3
TEE 2103	Design and Project Part 2
TEE 5001	Final Year Project
TEE 2142	Electrical Machines
TEE 1154	Physics for Electrical Engineers
TEE 5212	Power Electronics Applications

### COURSES TAUGHT at Bulawayo Polytechnic

Courses
▪ Electronic and Power Electronics at National Diploma and Higher National Diploma Electronic Devices and Circuits.

- Lecturer in Digital Electronics
- Lecturer in Mathematics at National Certificate level
- Supervisor student's projects.
- Lecturer in charge evening classes

#### **LOCAL & EXTERNAL EXAMINER:- DISSERTATIONS for Masters and Doctoral Students**

<u>Year</u>	<u>No of Students</u>	<u>Msc</u>	<u>PhD</u>	<u>University</u>	<u>Role</u>
2018	4	2	2	University of Fort Hare	External Examiner
2017	1		1	University of Fort Hare	External Examiner
2017	2	2		NUST(Zimbabwe)	Internal Examiner

### **III. SERVICE**

#### **CAMPUS LEVEL COMMITTEES/WORKING GROUPS**

<u>Date</u>	<u>Name of Committee/Working Group</u>	<u>Role</u>
2014- to date	Staff Development Committee	Member
2004- to date	Faculty Board	Member
2004- to date	Departmental Board	Member
2017-2018	Kwekwe Examinations Coordinator	Member
2008-date	Senate Member	

#### **REVIEW BOARDS**

Review Board	Zimbabwe Journal of Science and Technology
Review Board	International Conference on Manufacturing Processes, Systems and Operations Management Social Work (NUST) 2017
Review Board	South African Journal of Science
Review Board	Journal of Engineering, Design and Technology

#### **POSTGRADUATE AND CONTINUING EDUCATION COURSE ATTENDED**

<u>Date</u>	<u>Title of Program</u>
November 2019	'Structured Training for African Researchers (STARs) programme.
January 2009	Research Methodology and Thesis Writing at University of Fort Hare
Dec 15-19 2008	TREE Project:-Transfer Renewable Energy & Efficiency (meant to facilitate transfer of know how in renewable energy technologies, energy efficiency and climate protection) Berlin, Germany.
Nov 18-20 2003	Test Item writing for Tertiary Education by Flemish office for Development Co-operation and technical assistance.
Aug 17-18 2002	Research Methodology at Bulawayo Polytechnic
1997-1998	National Diploma in Technical & Vocational Education.

## REFEREES

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