

Joseph Njuguna Muguthu

PhD. (Harbin Institute of Technology, China), MPhil Tech Ed, Bed Tech. Hons.
(Moi University, Kenya),

1.1 PERSONAL PROFILE

1.1.1 Personal Details

Name Dr. Joseph Njuguna Muguthu

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Citizenship Kenyan

Gender Male

Designation Lecturer

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h-index 4

i10-index 3



1.1.2 Academic & Professional Qualifications

Postgraduate

- 2010-2013: PhD. in Mechanical Manufacture and Automation, Harbin Institute of Technology, Harbin, China, July 2013
- 2003-2007: Master of Philosophy in Technology Education (Mechanical Technology), Moi University, Kenya

Undergraduate

- 1992-1996: Bachelor of Education (Technology Education), Second Class Honors Upper Division, Moi University, Kenya

High School

- 1987 – 1990: KSCE, Grade B-, Nyandarua High School

Primary School

- 1986: KCPE, Uhuru Primary School

1.1.3 Employment History/Work Experience

- June. 2015 to date:** Lecturer, Energy Technology Department, Kenyatta University
- Feb 2014. - June 2015:** Lecturer, Mechanical Engineering Department, Kenyatta University
- Jan. 2005 – Feb. 2014:** Assistant Lecturer Mechanical Engineering Department, Teachers Service Commission, Thika Technical Training Institute
- Jan. 1999 – Aug. 2003:** Mathematics, Physics and Computer Studies Teacher, Hekima Girls High School
- Sep 1996 – Dec 1998:** Assistant Lecturer, Mechanical Engineering Department Mombasa Polytechnic

1.2 RESEARCH AND PUBLICATIONS

1.2.1 Articles in refereed journals

1. Macben Makenzi, Joseph Muguthu, Evan Murimi., “Maximization of Site-Specific Solar Photovoltaic Energy Generation through Tilt Angle and Sun-Hours Optimization”, Journal of Renewable Energy, DOI: 10.1155/2020/8893891., 2020
2. Jackbed Gakii Mugo, **Muguthu Joseph N.**, “Enforcement of Access to Effective Technical Support Services in the Kenyan Solar Energy System”. Journal of Energy Research and Reviews, 1-8, DOI: 10.9734/JENRR/2019/v2i229734., 2019
3. E.Y. Kombe, **J Muguthu.**, “Wind Energy Potential Assessment of Great Cumbrae Island Using Weibull Distribution Function”., Journal of Energy Research and Reviews, 1-8, DOI: 10.9734/JENRR/2019/v2i229734., 2019
4. E. Y. Kombe, **J. Muguthu.**, “Geothermal Energy Development in East Africa: Barriers and Strategies”., Journal of Energy Research and Reviews 2 (1), 1-6, DOI: 10.9734/JENRR/2019/v2i129722, 2018
5. J. C. Ngugi, P. Muchiri, **J. Muguthu**, C. Nkundineza. “Quality Failure Analysis and Quality Improvement Methods in Small and Medium Manufacturing Companies (A Case Study of Shamco Industries Limited)”. International Journal of Scientific & Technology Research Volume 7, Issue 4, ISSN 2277-8616, Apr 2018,
6. B. Osodo, D. Nyaanga, J. Kiplagat, **J. Muguthu.**, “Optimum Air Velocity, Air Temperature and Maize Layer Thickness for Highest Moisture Removal Rate and Drying Efficiency in a Forced Convection Grain Dryer”, American Journal of Food Science and Technology, DOI:10.12691/ajfst-6-6-6, 2018, Vol. 6, No. 6, 263-273

7. J.M. Wathigo, J.N. Keraita, J.B. Byiringiro, **J. N. Muguthu**, “Investigation on Optimal Cutting Parameters in Turning AISI 8660 Steel Using Silicon (SiC) Whisker Reinforced Ceramic Tool”, IOSR Journal of Mechanical and Civil Engineering (IOSR-JMCE), 2017
8. B. Osodo, D. Nyaanga, **J. N. Muguthu**, “Selection and Verification of a Drying Model for Maize (*Zea mays* L.) in Forced Convection Solar Grain Dryer”, American Journal of Food Science and Technology 5 (No. 3), 93-100, DOI: 10.12691/ajfst-5-3-4, 2017
9. **J. N. Muguthu**, and Gao Dong “Profile Fractal Dimension and Dimensional Accuracy Analysis in Machining MMCs”, Journal of Materials Manufacturing Processes, Volume 28, Issue 10, pages 1102-1109, 2013, DOI: 10.1080/10426914.2013.823501
10. **J. N. Muguthu**, Gao Dong and Zhaopeng Hao “Tool Wear, Surface Integrity and Dimensional Accuracy in Turning Al₂124SiCp (45%wt) Metal Matrix Composite using cBN and PCD Tools”, Research Journal of Applied Sciences, Engineering and Technology, 6 (22):4138-4144, 2013ISSN: 2040-7459; e-ISSN: 2040-7467.
11. **J. N. Muguthu** and Gao Dong. “Profile Fractal Characterization and Tool Wear in Turning Al₂124SiCp (45%wt) MMC using cBN and PCD Tools”. Journal: Research Journal of Applied Sciences, Engineering and Technology.
12. **Muguthu J. N.**, Gao Dong and Ikua B. W. “Optimization of Parameters Influencing Machinability of Al₂124SiCp (45%wt) MMC”. Journal: Journal of Composite Materials (DOI: 10.1177/0021998313516141 2013)
13. **Muguthu J. N.** and Gao Dong “Experimental Study on Performance of coated cBN, uncoated cBN and PCD tools in Turning Al 2124 SiC (45%wt) PMMC”, Journal: Key Engineering Materials Vol. 567 (2013) pp 27-31 doi: 10.4028/www.scientific.net/KEM.567.27
14. Gao Dong; Hao Zhaopeng; Han Rongdi; Chang Yanli; **J. N. Muguthu**. “Study of cutting deformation in machining nickel-based alloy Inconel 718”, International Journal of Machine Tools and Manufacture, Volume 51, Issue 6, June 2011, Pages 520–527. DOI: 10.1016/j.ijmachtools.2011.02.011

1.2.2 Other Publications

Reviewed Conference Papers

1. **J. N. Muguthu.**, (Host Speaker) “Leveraging Fourth Industrial Revolution in Africa: Role of Modeling and Simulation in Education”, 5th International Annual October Conference on Education and Lifelong Learning., Kenyatta University, October 2018.
2. **J. N. Muguthu**, N. Langat., “Financing Sustainable Energy Projects in Agriculture”., 1st Pan-African Society of Agricultural Engineers Conference., Mayfair Hotel, Nairobi (March 2018)

3. Booker O., D. Nyaanga, J. Kiplagat, **J. N. Muguthu.**, “Optimisation of an Experimental Forced Convection Grain Dryer Using Taguchi Approach”., 1st Pan-African Society of Agricultural Engineers Conference., Mayfair Hotel, Nairobi (March 2018)
4. **J. N. Muguthu**, D Gao., Tool Wear, Wear Mechanism and Dimensional Accuracy in Machining Al2124SiCp MMC using CBN and PCD Tools, Proceedings of Sustainable Research and Innovation Conference, 345-349, 2015
5. **Muguthu, J. N.** and Ikua, B. W., “Roadmap to Industrialization- Preparedness of Human Resource in Metal Manufacturing Industries in Kenya”, Scientific and Industrialization Conference, JKUAT, (Dec. 2007).
6. **Muguthu J. N.**, Kitainge M K. and Siomwene. “Just In Time Technology: What Are The Issues Related To Institutional Management?”, Kenya Association of Educational Administration & Management (KAEAM) 1st Conference 2007 Duration: 9-11 April 2007, Eldoret, Kenya.
7. **Muguthu J. N.**, Dimo H. A., Okemwa P. Kitainge M. K. and Nganga S. I. “Just-In-Time Manufacturing Techniques” Position Of Metal Manufacturing Industries in Kenya”. Jomo Kenyatta University of Agriculture and Technology Scientific, Technological and Industrialization Conference 26th and 27th Oct 2006
8. Kitainge M. K. and Nganga S. I. **Muguthu J. N.** and “Equitable Participation in Automotive Program Design: The Two Opposed Cases”2006 Jomo Kenyatta University of Agriculture and Technology Scientific, Technological and Industrialization Conference. 26th and 27th Oct 2006
9. **Muguthu J. N.**, Dimo H. A. and Okemwa P. “Limitations to Just-In-Time Implementation in Kenyan Manufacturing Industries” Jomo Kenyatta University of Agriculture and Technology Scientific, Technological and Industrialization Conference. 27th and 28th Oct 2005

1.3 QUALITY TEACHING AND LEARNING

Postgraduate Supervision

(i) PhD Supervision: Ongoing

- J98/33431/14 Macben Makenzi

Research Title: “Optimization of Solar Photo-Voltaic Water Pumping System Planning through techno-economic modelling and decision frameworks” Kenyatta University

- J98/24446/2013: Lucy K. Wangai

Joseph Njuguna Muguthu

Research Title; Optimization and Comparison of Production Process for fuel Bioethanol from wet and Dry Coffee pulp for cooking in Rural Kenya

(ii) Masters Supervision: Ongoing

- 156/7106/01: Ngigi John Njau

Research Title: “Design and Performance of a Combined Derrieus-Savonius Wind Electric Pumping System”. Kenyatta University

(iii) Postgraduate Supervision

(a) Masters Supervision: Completed

i. **Philip Onyango Aluoch**

Thesis Title: Productivity Performance Analysis and Improvement in Kenya Sugar Industry. (Case Study at South Nyanza Sugar Company Ltd., Awendo)

University: Dedan Kimathi. University of Technology

Graduation date: Passed Thesis defense, waiting graduation

ii. **James Mwangi Wathigo**

Thesis Title: Investigation on Turning AISI 8660 using Silicon Carbide Whisker Reinforced Ceramic Cutting Tool,

University: Dedan Kimathi University of Technology

Graduation date: April 2019

iii. **E221-003-0009/2012 James Njoroge Ndungu**

Thesis Title: Productivity Improvement of the Manufacturing Processes Through Modelling and Simulation Analysis: A Case Study of a Vehicle Assembly Plant.

University: Dedan Kimathi University of Technology

Graduation date: April 2017

iv. **E221-003-002/2012 Reuben Kirkumet**

Thesis Title: Analysis and Reduction of Energy Consumption in a Manufacturing Setup: A Case of Farmers Choice Limited

University: Dedan Kimathi. University of Technology

Graduation date: April 2016

v. **JE221-003-0023/2013 Stephen Kikuvi Vala**

Thesis Title: Development of Asset Management Strategies for Critical Care Equipment at Kenyatta National Hospital.

University: Dedan Kimathi. University of Technology

Graduation date: April 2016

1.4 PROFESSIONAL/CONSULTING

Networking and Collaborating with External Organizations

- **July 2020 – Current:** TVET-CDACC Consultant in Curriculum, Occupational Standards, Digital Content, and Learning guides development.
- **November 2018-** Current: KIPPRA Research papers reviewer and discussant.
- **March 2019-Current:** UNDP through NETFUND and Ministry of Environment; Rice Husk Particle Board Project Expert.
- **November 2018:** Consultant with Education Development Trust; Development of Accelerated Education Training Manual for the Catch-Up Classroom Teacher
- **October – November 2018:** Short term consultancy work with Tredgrow Africa to edit TVET CDACC Occupational Standards and Competency Based Curricula
- **September 2016:** A collaboration Between London South Bank University and School of Engineering and Technology
- **September 26th 2015 to October 16th 2015:** Consultant with Target Africa; Entrepreneurship and Leadership Skills Training Trainer in Energy Mangement.

1.5 ADMINISTRATIVE RESPONSIBILITIES IN KENYATTA UNIVERSITY

1.5.1 Administrative Positions

- **May. 2018 to September 2020:** Examinations Coordinator, Energy Technology Department
- **Oct 21st 2014 to April 2017:** Digital School Coordinator (School of Engineering and Technology) in KU
- **June 2016 to August 2020:** Co-coordinator Postgraduate Programs in Department of Energy Technology
- **July 2017 to May 2021:** Chair Board of Postgraduate Studies School of Engineering and Technology

(vi) Appointments to University Committees

- **October 2018:** A Committee on proposed Accreditation of certificate and diploma programs by TVETA Kenyatta University
- **September 2018:** A Committee to Develop a Strategies to Cope with Declining student Population in the University
- **March 2018:** A Committee to organize Kenyatta University School of Education 5th International Annual October Conference on Education and Lifelong Learning

(vii) School Boards

Joseph Njuguna Muguthu

- **January 2017 to May 2021:** Chair School Postgraduate Studies Committee, School of Engineering and Technology
- **January 30th 2019 to Date:** Board Member Endowment and Alumni Programmes Directorate Board

1.5.2 Other Responsibilities

- **August 2017-May 2018:** Development of Master of Science degree in Mechanical Engineering and Renewable Energy Technology
- **August 2017-May 2018:** Development of PhD in Mechanical Engineering and Renewable Energy Technology programmes

1.6 COMMUNITY ENGAGEMENT AND OTHER CONTRIBUTIONS

(i) Community Outreach

- **November 2019 to Date:** Chairman Board of Governors Thika Technical Training Institute
- **January 30th 2019 to Date:** Member Endowment and Alumni Programmes Directorate Board
- **March 18th 2019 to Date:** Member of the Board of Management Uhuru Secondary School (Nyandarua West Sub-county)
- **March 18th 2019 to Date:** Member of the Board of Management Kalou Secondary School (Nyandarua Central Sub-county)

1.7 REFEREES

1. Prof. Eng. B. W. Ikuu
Ag DVC (Administration)
JKUAT
P.O Box 62000-00200 Nairobi
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Email: ikuu_bw@eng.jkuat.ac.ke

2. Dr. Eng. Shadrack Mambo
Dean School of Engineering and Technology
Kenyatta University

_____ Joseph Njuguna Muguthu _____

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