CURRICULUM VITAE (CV)

POSITION: Chairman Mechatronic Engineering

NAME OF FIRM: Dedan Kimathi University of Technology (DeKUT)

NAME OF STAFF: Dr.Jean Bosco Byiringiro (Ph.D, Reg.Eng)

PROFESSION: Registered Electro-Mechanical Engineer

DATE OF BIRTH: 29th March 1972

ACADEMIC/TEACHING EXPERIENCE: 10 Years **NATIONALITY**: Rwanda

MEMBERSHIP IN PROFESSIONAL SOCIETIES: Engineering Board of Kenya (EBK), Institute of Engineers Rwanda (IER)

DETAILED ACADEMIC TASKS ASSIGNED:

Coordinate the implementation of:

- PhD in Mechanical Engineering
- MSc. in Mechanical Engineering
- MSc. in Advanced Manufacturing and Automation Engineering
- BSc. in Mechatrotric Engineering
- Bachelor of Education Technology (Mechanical Engineering)
- Bachelor of Education Technology (Electrical & Electronic Engineering)

- Bachelor of Education Technology (Civil Engineering)
- Siemens Mechatronics Systems Certification Programme (SMSCP)

Supervision of:

- Research Thesis, Ph.D Mechanical Engineering
- Research Thesis, MSc. Mechanical Engineering
- Research Thesis, MSc. Geothermal Technology
- Research Thesis, MSc. Industrial Engineering and Management
- Research Thesis, MSc. Advanced Manufacturing and Automation Engineering
- Research project, BSc. Mechatronic Engineering

KEY QUALIFICATIONS:

- **Registered Professional** Mechanical Engineer in Kenya (Engineering Board of Kenya- EBK)
- **Registered Professional** Electro-Mechanical Engineer in Rwanda (Institute of Engineers Rwanda)
- SIEMENS Certified Mechatronic Systems Associate (SITRAIN, Berlin Germany)
- **Editor-In-Chief**, International Journal of Electro-Mechanics and Automation (IJEMA). **ISBN NUMBER: 978-9966-092-70-0**. www.ijema.com.
- **Journal Editor**, Journal of the Korean Society of Manufacturing Process Engineers, **ISSN (Print) 1598-6721**. www.eng.ksmpe.or.kr

EDUCATION BACKGROUND:

- **December 2012**: Doctorate (Ph.D) Candidate, Mechanical Engineering. **Specialization:** Micro and Nano Fabrication, Yeungnam University (YU), South Korea
- **September 2009**: Master of Science (M.Sc.) degree, Mechatronic Engineering, Jomo Kenyatta University of Agriculture and Technology (JKUAT), Kenya
- **December 2005:** Bachelor of Science (B.Sc.) degree, Electromechanical Engineering, Kigali Institute of Science and Technology (KIST), Rwanda
- **February 2000:**Professional Certificate of Secondary Education, Option: Electro-Mechanical, Official Technical School of Muhima, Rwanda

KEY INTERNATIONAL TRAINING

- **September-December 2008:** Discrimination of the discharge pulses during micro-EDM operations. Research Laboratory of the Technical University of Kaiserslautern and University of Karlsruhe, Germany
- **March-April 2008:** Laser science and applications: Induction course sponsored by African Laser Centre (ALC), Kenya
- **October-November 2016**: Siemens Mechatronics Systems Certification Programme (SMSCP)

Key Employment Record:

- **September 2015:** Appointed Ag. Dean, School of Engineering, , Dedan Kimathi University of Technology (DeKUT), Kenya
- **July 2015:** Appointed Thematic Leader, MSc. Industrial Engineering and management, , Dedan Kimathi University of Technology (DeKUT), Kenya
- **May 2015:** Promoted to Senior Lecturer, Mechatronic Engineering Department, Dedan Kimathi University of Technology (DeKUT), Kenya
- **April 2015:** Appointed MSc. program Coordinator, Advanced Manufacturing and Automation Engineering, Dedan Kimathi University of Technology (DeKUT), Kenya
- **September 2013:** Appointed Chairman, Mechatronic Engineering Department
- **February 2013:** Lecturer, Mechatronic Engineering Department, Dedan Kimathi University of Technology (DeKUT), Kenya
- **October 2009**: Promoted to Assistant Lecturer, Mechanical Engineering Department, Kigali Institute of Science and Technology (KIST), Rwanda
- **December 2005:** Teaching Assistant, Mechanical Engineering Department, Kigali Institute of Science and Technology (KIST), Rwanda

BSC., MSC., AND PH.D TEACHING COURSE UNITS		
BSc. Programme	**MSc. Programme**	**Ph.D Programme**
Sensors and Transducers I & II	Advanced Machining Process	Research seminar I & II
Measurement and Instrumentation	Engineering Research Methodology	Engineering Research Methodology
Electrical Machine Drives I & II	Advanced Rapid Prototyping	System Modeling and Simulation
Machine Drives	Machine Dynamics	Advanced surface bonding and precision measurement
Manufacturing Process Planning	Productivity Management	Industrial rapid prototyping and tooling systems
Manufacturing Technology I & II	Scholar Seminar	Advanced MEMS and sensor systems
Research Project	Adaptive and Intelligent Control Methods	Advanced manufacturing technology
Flexible Manufacturing	Micro-Fabrication Techniques and Nanotechnology	Robust control

DEVELOPED CURRICULUM

- PhD programme in Mechanical Engineering
- MSc. Programme in Mechanical Engineering
- MSc. programme in Advanced Manufacturing and Automation Engineering
- BSc. Mechatronic Engineering
- Bachelor of Education Technology (Mechanical Engineering)
- Bachelor of Education Technology (Electrical & ElectronicEngineeing)

LANGUAGES:

- Excellent (Read and Write) : English, French, Swahili, and Kinyarwanda
- Basic command : German, Korea

KEY RESEARCH INTEREST

- Development of Base and Core Technologies for Nano/Micro-Based Ultra Precision Hybrid Machining Systems
- Development of an Economic Fabrication Technique of a 3D Rapid Micro-Mask Based on Micro-Stereolithography for Micro-Abrasive Jet Machining

KEY COMPLETED RESEARCH PROJECTS

- **July 2015:** Revival of Micro-Hydro power plant in coffee farm of Dedan Kimathi University of Technology (DeKUT). Project sponsored by DeKUT Research Grants, Kenya
- **February 2011:** Fabrication of a photo-resist micro-mask on 3D freeform workpiece surface for micro-abrasive jet machining. Project sponsored by Yeungnam University Research Grants, South Korea
- **February 2010:** Process modeling of hybrid machining system consisted of electro discharge machining and end milling, Project sponsored by Yeungnam University Research Grants, South Korea
- **September 2009:** Design and simulation of a fuzzy logic based servo controller of a micro-electro discharge machining (EDM) system. Project sponsored by DAAD Research Grants, Germany
- **January 2007:** Development of a novel small scale Francis turbine testing unit for laboratory experiments. Project sponsored by Kigali Institute of Science and Technology (KIST) Research Grants, Rwanda
- **March 2006:** Development of an infant formula for replacement of breast feeding from mother to child, Project sponsored by Clinton Foundation Research Grants, Rwanda
- **November 2005: Development of an** electromechanical system for transformation of soybeans. Project sponsored by Women Consultative Council through TROCAIRE Research Grants, Rwanda

THESES SUPERVISION AND EXAMINATION

PhD Supervision

- **Mwangi, Stephen Maina,** Vaccine Refrigerator: Design of Cold Storage Temperature Control System **(PhD under progress)**

Masters supervision

- **Anyona Morang'a Kennedy**, Using Geothermal Energy in Recycling Polyethylene Terephthalate (PET) in Kenya: Case Study of Olkaria. **(MSc. under progress)**

- **Bande Leonard Mutiva,** A Study on Suitability of Recycled Polyethylene Terephthalate for 3D Printing Filament **(MSc. Completed)**
- **Bonface Kipkorir Cheruiyot**, Load Optimization By Steam And Blade Washing In A Flash Type Power Plant-A Case Study Of Olkaria II Power Plant **(MSc. under progress)**
- **Stanley Ngari Irungu**, Generation of Power From Kiln Waste Heat: Case Study of East African Portland Cement Ltd **(MSc. Completed)**
- **Jacob Ita Mbiti**, The Effects of Grid Disturbances in Kenya Power System. **(MSc. under progress)**
- James Karimi Njuguna, Precious Metal Recovery from E-Waste. **(MSc. under progress)**
- **Martin Irungu Kamande**, Artificial Neural Networks' Based Model for Temperature Prediction of an Industrial Oven **(MSc.-Completed)**
- Benson Kilonzo Mbithi, Optimization of Fiber Laser Cutting of Solar Cells: Modeling and Experimental Approach **(MSc.-Completed)**
- **Samuel Macharia,** Real-Time Remote Wind Data Acquisition and Processing System for Wind Turbines Using Internet of Things Technology **(MSc. under progress)**
- Mwachuga Gift, Investigating Factors that Mostly affect the 3D Print Physical Appearance **(MSc. under progress)**
- **Cornelius Juma Nganga,** Improved Maintenance System for the Cane Crushing Mill *(A case study of Nzoia Sugar Company Limited)* **(MSc.-Completed)**
- **Njeru David Mwangangi**, Process Analysis for Emission Control within the Small Scale Coffee Roasting Industries in Kenya. **(MSc.-Completed)**
- **James M Wathigo**, Investigation on optimal cutting parameters in turning AISI 8660 steel using silicon (SiC) whisker reinforced ceramic tool **(MSc.-Completed)**
- **Ascar Mukabana Wepoh**, Optimal Utilization of Geothermal Energy by Use of Low& Medium Enthalpy Wells for Direct Use of Poultry Incubator **(MSc. under progress)**
- **Charles Odada:** Investigating the viability of extruding filament in different colors of filament from PLA Pellet **(MSc. under progress)**

RESEARCH PUBLICATIONS:

Books

- **Jean Bosco Byiringiro**., "Tunable Fuzzy Logic Based Controller for Micro-EDM Servo System", Lambert Academic Publishing (LAP) ISBN: 978-3-8383-8160-2, AG & Co. KG (2010), Germany
- **Jean Bosco Byiringiro**, "SU-8 Micro-mask on 3D Freeform Surface of Brittle Materials for AJM: Optimal Conditions of SU-8 Mask for Micro-Abrasive Jet Machining of 3D Freeform Brittle Materials" Lambert Academic Publishing (LAP) ISBN: 978-3-659-40727-7, AG & Co. KG (2013), Germany

Science citation index journal papers

- **Byiringiro J.B**, Kim M.Y., Ko T.J., "Process modeling of hybrid machining system consisted of electro discharge machining and end milling", International Journal of Manufacturing Technology, 61 (2012) 1247-1254, Springer
- **Byiringiro J.B,** Ko T.J, Kim H.C, Lee I.H., "Optimal Conditions of SU-8 Mask for Micro-Abrasive Jet Machining of 3-D Freeform Brittle Materials", International

journal of Precision Engineering and Manufacturing (14), No. 11 (2013) 1989-1996, Springer

Peer reviewed international conference papers

- S.N. Irungu, P.N. Muchiri, **J.B. Byiringiro**, The generation of power from a cement kiln waste gases: a case study of a plant in Kenya, Energy Science and Engineering 2017; 5(2): 90–99
- **Byiringiro J. B**., Juma D.W., Keraita J.N., Micro-Stereolithography process for fabrication of mask onto a 3D freeform workpiece, Society of Electrical and Electronics Engineers International Conference (KSEEE-2013), Kenya
- **Byiringiro J.B**., Ko T.J., Kim H.C., Lee I.H., " Fabrication of the photo-resist mask onto 3D nonplanar wafer for micro-abrasive jet machining", Proceedings of the 2012 Mechanical Engineering Conference on Sustainable Research and Innovation, ISSN 2079-6226, 4 (2012) 155-161, Kenya
- **Byiringiro J.B**., Ko T.J., Kim H.C., Lee I.H., " Fabrication of the rapid mask onto 3D non-planar wafer for micro-abrasive jet machining", Proceedings of Korean Society for Precision Engineering, KSPE ISSN:2005-8446 (2012) 535-536, South Korea
- **Byiringiro J.B**., Kim M.Y., Ko T.J., "Recent development in the hybrid machining process: EDM together with milling on Steel alloys", Proceedings of the 3rd International and 24th All India Manufacturing Technology, Design and Research Conference, AIMTDR (2010) 441-446, India
- **Byiringiro J.B**., Kim M.Y., Ko T.J., "Experimental investigation of machining parameters for hybrid machining process", The 7th International Workshop on Micro-Factories, IWMF (2010) 225- 230, South Korea
- **Byiringiro J.B**., Ikua B.W., Nyakoe G.N., "Fuzzy logic based controller for Micro- electro discharge machining servo systems", IEEE Africon 1-2 (2009) 175-180, Kenya **Byiringiro J.B**., Kim M.Y., Ko T.J., "Recent development in the hybrid machining process: EDM together with milling on Steel alloys", Proceedings of the 3rd International and 24th All India Manufacturing Technology, Design and Research Conference, AIMTDR (2010) 441-446, India
- **Byiringiro J.B**., Kim M.Y., Ko T.J., "Experimental investigation of machining parameters for hybrid machining process", The 7th International Workshop on Micro-Factories, IWMF (2010) 225- 230, South Korea
- **Byiringiro J.B**., Ikua B.W., Nyakoe G.N., "Fuzzy logic based controller for Micro- electro discharge machining servo systems", IEEE Africon 1-2 (2009) 175-180, Kenya

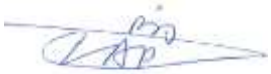
REFEREES

- Prof. Ndirangu P. Kioni (Ph.D, Reg. Eng.), Vice-Chancellor, Dedan Kimathi University of Technology (DeKUT) Email: ndirangukioni@yahoo.com
- Prof. Ko Tae Jo (Ph.D), School of Mechanical Engineering, Yeungnam University, South Korea. Email: tjko@yu.ac.kr

- Prof. Ikua B. Wamuti (Ph.D, Reg. Eng.), Principal, College of Engineering andTechnology, Jomo Kenyatta University of Agriculture and Technology (JKUAT) Email: ikua33@hotmail.com

CERTIFICATION:

I, the undersigned, certify that to the best of my knowledge and belief, these biodata correctly describe myself, my qualifications and my experience.



Date: **22th May 2017**

Signature of Staff Member or authorized official from the firm *Day/Month/Year*